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NATURAL HISTORY

LINCOLNSHIRE NATURALISTS' UNION

Transactions, 1947-50

VOLUME TWELVE

Edited by F. T. BAKER, A.L.A., F.S.A.
and A. ROEBUCK, N.D.A., F.R.E.S.

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NATURAL HISTORY

PRESENTED THE

10 - JAN 1952

LINCOLNSHIRE NATURALISTS UNION

TRANSACTIONS

CONTENTS

President's Address—"The naturalist and his contribution to biological knowledge."
Dr. R. W. Butcher, B.Sc., F.L.S.

Hon. Secretary's Report 1950. *F. T. Baker, A.L.A., F.S.A., F.R.E.S.*

Sectional Reports :—Botany, Mycology, Entomology, Economic Zoology, Ornithology and Arachnology.

Edited by

F. T. BAKER., A.L.A., F.S.A., F.R.E.S. and A. ROEBUCK, N.D.A., F.R.E.S.

Vol. XII. No.4 **DECEMBER, 1951**

LINCOLN
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Lincolnshire Naturalists' Trust, Ltd.

FORMED 1949.

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City and County Museum, Lincoln.

Formed by Lincolnshire Naturalists to promote the conservation of our native vegetation and the rich and varied animal life which it supports. The Trust will acquire and maintain nature reserves and develop the study and protection of wild life throughout the County.

Membership of the Trust is open to everyone on payment of :—

A sum of not less than £10 for Life Membership,

or

An annual amount of not less than 10/- for Ordinary Membership.

A reserve fund has been established for the purchase of property and for providing a Field Centre at Gibraltar Point. Special donations to this fund would be welcomed.

Enquiries should be addressed to the Hon. Secretary, 51 West Street, Alford.

Lincolnshire Naturalists' Union

Founded June 12th, 1893.

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STATEMENT OF ACCOUNT

from January 1st to December 31st, 1950

GENERAL FUND.

Receipts.	£	s	d
To Balance 1st January, 1950 ...	32	17	0
„ Members' Subscriptions ...	90	3	6
„ Income from 'bus fares ...	59	8	1
	£182	8	7

Payments.	£	s	d
By Postages and small payments	25	11	0
„ Notices of Meetings and Stationery	23	5	2
„ Hire of 'buses	60	14	0
„ Copy of *Reed Warblers* by P. E. Brown and M. G. Davies	0	12	6
„ Index Cards for mycological flora	1	13	7
„ Bank Charges	0	5	0
„ Cheque Book	0	5	0
„ Balance at 31st Dec., 1950	70	2	4
	£182	8	7

PUBLICATION FUND.

Receipts.	£	s	d
To Balance at 1st January, 1950	86	11	7
„ Donations to Publication Fund	21	9	0
„ Sale of *Transactions* ...	13	1	6
„ Sale of *Geology of Lincs.* ...	34	16	5
„ Bank Interest	0	7	3
	£156	5	9

Payments.	£	s	d
By Printing of Transactions, Vol. xii., No. 2 ...	43	10	0
„ Balance at 31st Dec., 1950	112	15	9
	£156	5	9

LIFE MEMBERS' SUBSCRIPTIONS AND BEQUEST.

	£	s	d
To Amount shown on Balance Sheet, 1949	155	14	3
„ Additional Life Members' Subscriptions	7	10	0
Interest on Savings Certificates held	2	5	8
	£165	9	11

	£	s	d
By Value of Savings Certificates at 31st December, 1950	165	9	11
	£165	9	11

Audited and found correct.

ROBERT WITHERS,
Hon. Auditor.

PRESIDENTIAL ADDRESS

DELIVERED AT LINCOLN, 17TH MARCH, 1951

BY

DR. R. W. BUTCHER, B.SC., F.L.S.

THE NATURALIST AND HIS CONTRIBUTION TO BIOLOGICAL KNOWLEDGE.

The study of living things, whether it is done in a cursory manner or with great intensity and enthusiasm, whether one has only a little spare time or whether one is in a position to devote a large part of one's life, is a pursuit fascinating, in one aspect or another, to you all. I propose to present to you today some of the aspects of this pursuit or hobby. It is of course possible to gain a lot of information about living things in a laboratory or zoological garden where specimens may be seen dead or preserved alive for study and experiment. It is, however, far more fascinating and often more instructive to make a study of organisms in their natural surroundings and in their proper homes. Some people study living things by the former method, others by the latter, while many use both. All could be called biologists as they study life, but only those who make a study of organisms in their native surroundings may properly be called naturalists. Although many collectors and systematists in museums could hardly deserve this name, it is an essential part of their work, if they wish to be considered complete naturalists, to collect and, above all, to collate and describe the material which they study. It is all important that they should be able to demonstrate with specimens, photographs and drawings the exact nature of their living objects.

I hope I shall be forgiven if I divide my " complete naturalists " into two groups : the amateur and the professional. Fortunately, there is no fixed boundary between the two ; the naturalist who is paid for his task is frequently as fond of, and as devoted to his subject, as any who can only give to his hobby such time as he can spare from his other tasks and duties. I separate the two groups because of the fundamental difference, that while the professional is the paid servant of an organisation and he must study the group of organisms which he has been requested to do and for which he has the whole of his time and the resources of the organisation, the amateur is free to choose and chop and change as the spirit moves him, but it is unusual for him to have more than a small fraction of the time and resources that are at the disposal of his possibly more fortunate brother.

The professional chooses the subject of his study from a sense of duty, the amateur chooses what gives him pleasure. I propose to deal chiefly with the occupations of the latter, to consider some of his achievements and to suggest objects of study from which most enjoyment may be derived.

Of the past I shall say very little. In the days of our forefathers probably the only naturalists paid for their studies were those at the Universities and the gardens of the big houses. Among them such names as Henslow and Babington at Cambridge, and Sir Joseph Paxton, gardener at Chatsworth House, come to one's mind and we certainly owe them much gratitude for their work, and the records they have left behind. One inevitably found in those days, naturalists prominent among the clergy, the medical profession and the pharmacists since in their vocations a biological outlook was essential in one form or another. Lincolnshire can boast of several such men, as for example Rev. E. A. Woodruffe-Peacock and Rev. W. W. Mason. It was a member of the clerical profession who wrote one of the first monographs on a group of insects, namely Rev. A. E. Eaton([1]), and it was the Linnean Society of London who published his work on the British Ephemerids. Then naturalists seemed to confine themselves to small groups, for example monographs of the *Rubi* and the Willows were both written by clergymen.

As the century progressed and education and wealth increased it was reflected in the variety of callings from which amateurs arose; one only has to consult the county floras and the text books and smaller monographs to get a good idea of their diversity. G. C. Druce, that indefatigable collector and writer of county floras, was a pharmacist. H. N. Dixon, the author of a noted text book on mosses, was a schoolmaster. Fryer, who had an unrivalled knowledge of the pond weeds of his district, was a shoemaker. Carleton Rea, one of our leading mycologists, was a lawyer; R. Gurney, a great authority on Crustacea, and Lord Rothschild both came from a wealthy banking family. Fortunately this wide interest in nature among people of all callings still remains, though one wishes they were more numerous. There may be more than we think—and we must leave it to our children, who will have had the benefit of our records and published work, to judge.

This fine record of the amateur naturalist is, I feel sure, one all living naturalists desire to equal or even to exceed. It is now proposed to put before you a few of the fascinating problems of living things which remain to be solved, together with suggestions as to how they could be tackled with the limited time and resources of the amateur, in the hope that some of you will be attracted to them. Considering first the things that particularly attract the naturalist, we must put foremost the desire to make a collection. This desire seems to be innate in a large proportion of mankind though collections may vary and include such things as fleas, postage stamps or big game or horse-brasses. The desires which collecting satisfies are as many as the variety of the collections, probably the only one which we can rule out as in no way conducive to knowledge is the desire to create wealth. With such a collector it will be only the market value of his object and not any affection for them as objects of beauty or inherent interest

that inspires him. All the same, collectors have many desires in common. First there is the aim to make a collection as complete and as representative of the group as possible. As an example of this, one might instance the people who set out to collect every species represented in the British Flora. This aim always involves the wish to obtain representative specimens of all the very rare species (I am confining myself now to natural history collections), and though it would probably satisfy a collector if he obtained the species by his own efforts, in some the wish becomes so great that, failing the obtaining of it personally, he is prepared to barter or purchase the object. This has unfortunately put a monetary value on the rare species of the most popular groups of living things and this has led inevitably to unscrupluous collectors taking hundreds of specimens for mere monetary advantage. Such practices are worthy only of our emphatic condemnation, but is the naturalist who collects more rare specimens than he needs so that by barter with friends he can fill gaps in his collection and his knowledge, worthy of equal condemnation ? I should not like to say. In order also to get completion there is always the close consultation of the standard lists and a group that has no standard list claims few disciples.

After the desire for completion which the collector of natural objects, if he is not a slave to his lists, soon discovers unattainable, is the requirement that his specimens should be permanent. He must therefore be able to set them out in such a manner that they look beautiful or to make the collection look large and therefore, he hopes, a record. He must be able to display them to his friends usually with the remark " Have you ever seen a more beautiful creature ?" " Do you know there are only two other examples of this specimen in existence, and Lord —— has one of them." " That is worth £50, and it cost me five bob."

Having decided on the grounds of interest, beauty, availability or expense, what group shall be collected, one soon finds a collection is useless and unattractive if not sorted and arranged in some kind of order and named ; for if it is not named it is impossible to distinguish the common and the rare samples. Usually, as life is short and space limited, duplication of any but the rare species is studiously avoided. Here we come to the first step forward from mere collecting to the gaining of knowledge. The collector must look closely into his specimens for the clue to identity, he searches for points of difference which may mean that his specimen is exceedingly rare or very common. The search almost invariably leads to a study of detail, and the intensity of that study usually develops in proportion to the opportunity and energy of the collector. It will soon be discovered by the collector that living things do not always conform to a fixed pattern, corresponding with the type in the standard catalogue and he will then either look more and more deeply into the structure and variation of the things he collects or give the group up in disgust because he cannot grasp the

essentials. It is those who have, in spite of all the difficulties, continued to go into the intricate details of the objects of their collection who have contributed most to our knowledge. Here one point should be emphasized. However much knowledge of his collection a collector may obtain, this is of little permanent use if nothing is written down. The prompt and detailed labelling of his specimens with date acquired and the place found is of utmost importance, and many very extensive collections are useless because this information is lacking. Notes on the surroundings of the specimen, when collected and, perhaps, the circumstances of the collecting are other useful points but the identification of the specimens is of secondary importance. Identification from the collectors own view point is essential however, as without this he cannot place the object in its proper niche in his collection.

These requirements : good preservation power, attraction of colour and outline, ease of study and identification, have resulted in some groups of living things being very extensively studied while others are completely neglected. The popular groups are undoubtedly flowers, butterflies, and birds' eggs and as a result, our knowledge of these is very extensive. There are, however, in many of the other groups, objects of beauty and interest, equal to or exceeding those of the popular groups. Before leaving the subject of collections in general there is another great defect to be mentioned and that is the comparative rarity in most collections of the common species. There is always the tendency to acquire the rare plant or animal and neglect our common ones. Our national collections are an amalgamation of species collected, not by the staff or a few individuals, but by many thousands. They invariably have many examples of rare specimens of such things as the swallow-tail butterfly or the Bristol rock-cress, organisms which to the systematists are of little interest as they probably come from the same localities and show little variation. The common variable plants, however, are very poorly represented. The study and collection of a large range of the common variable organism is one of the pursuits I commend to you.

For the proper study of a group of organisms, a collection is in my opinion essential, but the " mere collector " is no naturalist. This brings us to the second attraction of living things and that is the fascination of watching their movements and their tricks. This usually leads to a study of the ways of plants and animals, how they feed, how they breed, and what kinds of places they live in. This attraction I sum up in the word watching. Watching living things can usually be done close to one's home, but that is no reason why the visiting of out-of-the-way places for rarities, which is such an attraction to the collector, should not form a part of one's programme.

The most popular group for watching is undoubtedly the birds but bees, fish and mammals have their disciples. Compared to collecting and the study of form and variation, this study of the habits of living things has not been extensively followed. There is, however,

great scope here. For example, the detailed study of the germination of seedlings, the more exact record of methods of the pollination of flowers, the feeding habits of, in particular, the smaller organisms. In the choice of the things to watch, size and accessibility are controlling factors and I fully appreciate the difficulties of studying in any way the habits of very small organisms. As with collecting, the recording of what one sees, for others to benefit by the knowledge acquired, is essential. Hence a diary or log book should be kept. Even if they are never again looked at by the compiler they will quite likely be a mine of information to the naturalist of the future. It is well known how difficult this record keeping often is and the temptation to neglect it because of the time it takes but well kept note books may be the deciding point as to whether your hobby has been of value to others or not.

Based on the above principles of what is likely to give an amateur naturalist the greatest pleasure, some suggestions are now put forward of problems which remain to be solved and how they can be tackled with a sincere hope that some of you may be attracted to them.

The flowering plants will be considered first. This large group of living things on which many other organisms are dependent has still in it many attractive problems to study. I have already suggested that if you collect it is a good idea not to concentrate on the rare plants but obtain examples of the common plants from varying types of soil, lighting, elevation, etc. Studies of certain plants and in certain districts are still much needed. I have referred before to the importance of publishing a good Flora of Lincolnshire. There is a great need for workers to collect and record the plants growing in the districts in which they live. Help will be willingly given in the identification of any plants if sent to the Honorary Secretary of the Botanical Section, but they must be fully located. You can also have a lot of fun studying distribution of plants or, for that matter, any organism, with the aid of the O.S. map with the National Grid references. As well as the map you will need squared paper. Take a given plant or plants and put a dot on the squared paper corresponding to the grid square wherever the plant is found. You need not visit every square in the county but it is sufficient if you make transects at intervals. Again you can derive quite a lot of interest in listing all the important plants in one of the x 10 grids or if more detail is desired in the unit grid.

Similarly it is possible with the help of local floras to make very satisfactory distribution-maps of single species throughout Britain. An interesting map could be made of the types of woodland—recording in each the trees and the ground flora. To visit every wood in the county is the kind of objective that appeals to energetic naturalists. Another interesting task would be to record all the water plants in the county and make a distribution map of them, always remembering to preserve plants of any interest.

As well as the study of distribution, there is the intensive study of the biology of a single plant. This is the objective of the biological flora of the British Ecological Society. The plan is, you " adopt " a plant, find out all you can about it, its distribution, variation, how it is pollinated, the number of seeds it produces, when it flowers, etc. Alternatively, as I mentioned before, an intensive study of one point : pollination and the insects visiting or living on the various plants would be an interesting piece of work for one who is both entomologist and botanist. An example of such work is Sir Edward Salisbury's " Reproductive capacity of plants."(2). Conditions of germination and the growth of the seedlings is another fascinating study and I know one naturalist who has an almost complete collection of developing seedlings though he found it an impossible task to keep the first stages.

Mosses and liverworts attract a number of naturalists. They can be preserved and there are good text books on the subject, though Lincolnshire is not a rich county for these groups. Here again the problems to be tackled are similar to those of the flowering plants : distribution, development, and biology.

The other groups of plants in the main involve the use of the microscope which makes their study a matter of difficulty because the apparatus is so expensive. Yet I feel the outlay on a good, modern, student's microscope is well worth while for there are so many fascinating problems awaiting investigation and for which a microscope is essential. There are, however, far too many unsuitable instruments on the market and a scheme is badly needed for advising young naturalists on the type of instrument to obtain and if necessary even arrange a scheme of hire or deferred purchase. The problem of illumination in these days of universal electric light is not as great as it used to be. Adjustable table lights are easy to make or to obtain, but if you are ever stuck out in the country, an ordinary electric bicycle lamp put under the stage is frequently sufficient illumination.

I have recently found a great deal of interest in the morphology of seeds ; each has its own individual shape and markings which cannot be deciphered without a low power microscope. Similarly I feel there must be characteristic differences in the pollen grains and here is a little investigation which will probably satisfy the collecting instinct and the desire to do something unusual. There are many other attractive problems with the microscope though these often involve a lot of bench work and perhaps this would be regarded by many outdoor naturalists as very boring.

The fungi are not very attractive things to study for one cannot make a satisfactory collection of the larger types and a study of the microscopic forms usually involves much culture work. However, this group is of such great economic importance that its problems may be safely left in the hands of the professional.

The algae are different. They are much neglected and little understood. With the exception of the diatoms, the siliceous shells

of which make very attractive permanent microscope slides, the algae in general do not lend themselves as satisfactory collecting material. Another disadvantage is that in collecting algae one hardly knows what the organisms are till they are brought home and examined under the microscope. I know one enthusiast who fitted up a bench in his car, took his microscope with him and examined his collections on the spot. A further difficulty is the inaccessibility and expense of the literature dealing with the taxonomy of this group in which new species are being continuously described. In this, or indeed in any microscopic group, the one essential is that notes should be generously interspersed with adequate drawings ; personally I would sooner have a camera-lucida as a microscopic accessory to enable me to make good drawings than a mechanical stage.

I have recently been fascinated with the culture of algae in the laboratory. This is far easier than it at first sight appears and in the hope that it will attract some of the older microscopists, I propose giving you a brief outline of my methods.

The apparatus needed is very simple. Algae are cultivated in ordinary resistance glass test tubes which are hung up in rows in a window, facing north. This is because direct sunlight kills many of the species and temperatures should be kept low. There is, in this country, very little light in the winter, so for these few months growth is slow. Growth may be hastened at this season by the use of a warm white tubular light if it is thought to be worth the outlay. For sterilising, the domestic oven is sufficient for it is not necessary to have the cultures completely free from bacteria to obtain results. Other accessories are eye glass, watch glasses, glass tubing and rubber teats, and, of course, the microscope. In each test tube of liquid culture-medium, I usually put a glass cover slip on which the organism grows readily and which can be removed and made into a permanent micro-slide.

Medium. This is of the simplest and the following has been found to be a very satisfactory formula.

Extract of soil, 50 ccs.

.0001 molar quantities each of potassium dihydrogen phosphate, potassium nitrate, magnesium sulphate, sodium sulphate and calcium carbonate or chloride with 950 ccs. of distilled water.

To make the soil extract proceed as follows :—

Take 1000 grms. of good garden soil and one litre of distilled water. Digest for one hour at 100° C. Stand for two—three days, decant and sterilise. Allow to stand for twenty-one days and filter if there is any precipitate before use.

Any good garden soil will do. If it is desired to study algae of acid waters substitute peat for soil.

Isolation. Proceed as follows. A tube is inoculated with a drop of water, a little mud or a fraction of glass slide that has been for twenty days in a pond or river, and left for about a week to grow. When growth has developed, a piece of the glass slip is broken off and put in the medium in a watch glass. This is broken into minute bits with the desired algae on them, picked up with fine watchmaker's forceps and put in a new tube of medium. The operation is repeated until the culture contains only one species. An alternative to the glass fragments method is to pick up a single cell or filament with a fine pipette and wash it once or twice until it is quite clean. Though I have not attempted it, I feel sure that protoza and the smaller animals such as the copepods could be cultivated and studied in this way, if their food organisms could be discovered and added to the culture. It also opens out a new method of providing algae for food for other organisms such as snails.

When the natural history of the animals is considered, one surveys such a great variety of organisms and problems that only a very few can be mentioned. Though some groups have been much neglected and there is plenty of scope for anyone with courage to tackle such complicated groups as diptera and coleoptera, it is the biology of the few rather than the systematics of the many to which attention should be called. The insects in particular attract me. In systematic works, too often the identification is based solely on the adult and there is urgent need for records of the development of various species from egg to adult with, of course, adequate descriptions of each state. There is also a great deal to be discovered as to the feeding habits and food of many animals, especially the smaller ones. This, I know, means tedious dissections and examinations under the microscope, but I feel it is well worth while. The breeding and feeding on specific diets is another promising line of enquiry especially as it is now possible to obtain and grow cultures of certain algae.

Then a whole lot of problems arise in the story of breeding habits. The description of the migration and spawning of the common frog by R. Maxwell Savage([3]) is an illustration of what can be done by patient observation.

There is one special problem in birds to which I would call your attention. It is generally accepted that birds may aid the spread of plants by carrying seeds in the mud on their legs, but has anyone set out to demonstrate this? Are there any seeds among a bird's feathers and if so, how general are they? Also how many seeds are capable of passing unharmed through a bird's digestive system? A few birds and pots of sterilized soil in a glass house are the principal requirements.

I think enough has been said to indicate new, and, I hope, attractive occupations for the naturalist, though I am well aware that many a young enthusiast may be frustrated or deterred for lack of facilities, apparatus and guidance. I have already mentioned the need for making more good microscopes available for young naturalists. Almost of

equal importance are facilities for making experiments and examining and naming collections. They are frequently inadequate. Books in special groups are expensive and, though a naturalist should possess the standard text books of the group he studies, he cannot afford, and often can consult only with difficulty, the standard reference books and papers. There is a great need for laboratory and bench space where such workers would be welcomed at times most convenient to them. Unfortunately for a curator this is usually during a week-end or an evening. The aims of the field study centres are good but they are at present very few and rather elaborate. What is needed is, I feel, a kind of club-room or institute with bench space, apparatus and text books available and where a member could slip in and work at his group when he wishes, and examine type collections to which he should be encouraged to make contributions. I know that the more enlightened museums do their best, but some are inclined to lock everything away from the casual visitor. I do feel that if a museum authority could establish a laboratory for research near or within its buildings, and at which working naturalists could tackle their problems when they wished, it would be an outstanding contribution to biological science.

If further these could be enlarged to a club with experienced naturalists attending at certain times, to give guidance to the younger generation, it would earn the gratitude of all who have the study of living things at heart.

References.

1. Eaton, A. E. *Trans. Linn. Soc. London. Zool*, Vol. III, 1888.
2. Salisbury, E. J. *The reproductive capacity of plants*, London, 1942.
3. Savage, R. M. *Trans. Zool. Soc. London*, Vol. I, 1935.

REPORT OF THE HON. SECRETARY AND TREASURER

1950.

The year has been one of steady activity and considerable progress. The subscription rate was increased on 1st January and its effect on the membership was carefully watched throughout the year. The membership figure remained almost constant and although there were some resignations there was no indication that the higher subscription had been a serious factor. There has been no diminution of interest in the Union's activities and attendances at both field and indoor meetings have been up to last year's record figure.

Some progress has been made with brochures. The rewriting of the original typescript of the Bird Brochure prepared by Mr. S. A. Cox to include additional information collected by Mr. A. E. Smith and Mr. Lenten Ottaway is making steady progress. Mr. A. Roebuck is preparing introductory chapters. The Sub-Committee appointed at the last Annual General Meeting to consider a County Flora has met and decisions have been taken. The principle of publishing the flora in parts dealing with ecological habitats in turn has been agreed. Arising out of the work of this sub-committee a close examination was made of the system of divisions for recording evolved by the Rev. E. A. Woodruffe-Peacock in 1895. It was felt that in general the divisions did not bear sufficient relationship to soils and broad ecological habitats. The President undertook to prepare a revised scheme more closely related to soil types. A general discussion led by the President in January of this year (1951) resulted in a recommendation to this meeting that a sub-committee be appointed to go further into the matter. Miss Gibbons and Miss Waterhouse are both working on material for a general and fungus flora.

Members have again contributed to an inquiry into the status of the Grey and Red Squirrels in the County. Up-to-date information for comparision with figures collected in 1945 will be published by the Bureau of Animal Population at Oxford.

The Union's financial position continues to be satisfactory. On the General Account income exceeded expenditure by £37 5s. 4d. and the balance at 31st December was £70 2s. 4d. Annual subscriptions amounted to £90 3s. 6d. compared with £74 8s. 9d. last year. Against this significant increase must be set a fall in contributions to the Publication Account from £29 4s. to £21 9s. This drop of £7 15s. was to be expected following the raised subscription. It is, however, hoped that with the costs of printing still rising, members wherever possible will make this additional contribution to the funds. Administrative costs varied little from last year : the average cost per member worked out at 2/9½d. There was a slight loss on the hire of buses amounting to £1 5s. 11d. ; this was not so serious as it appeared might be the case mid-way through the season. It must be emphasised that members booking seats must accept full responsibility for the

cost even though they may not be able to fulfil the reservation on the day. The Publication Account shows an increase in balance from £86 11s. 7d. to £112 15s. 9d. The fall in donations to the Publication Fund was offset by the sale of back numbers of the *Transactions* amounting to £13 1s. 6d. Income from the sales of the *Geology of Lincolnshire* amounted to £34 16s. 5d. Of the 750 copies printed, 343 remain to be sold. The Account for Life Members' Subscriptions and Bequests shows an increased balance of £9 15s. 8d. ; one Life Member's subscription has been invested during the year. The total balances of the Union at 31st December amounted to £348 8s. compared with £274 12s. 10d. last year—an increase of £73 15s. 2d.

Field Meetings.

The first meeting of the year was on 18th February at the Trent Fishery Board Hatchery at Calverton, near Nottingham. The party was conducted by Mr. O'Brien, manager of the hatchery, and Dr. R. W. Butcher, naturalist to the Board. This was an unusual and particularly instructive meeting. All stages of the development of the trout from egg to adult fish were seen. Tea was taken at the Four Bells, Woodborough. The 242nd meeting was at Scawby, near Brigg, on 6th May. The woodlands and gull-ponds were visited by kind permission of Col. O. Sutton Nelthorpe, C.B.E., D.L., J.P. Members were under the guidance of Mr. S. A. Cox and Mr. A. N. Jones. A dull, wet morning, gave place to a fine afternoon and many birds were observed, including the Wheatear, Woodlark, Nightingale, Blackcap, Willow Warbler, Woodcock, Hawfinch, Curlew and Snipe. The colony of Black-headed Gulls was estimated at about 250 pairs. Much of the success of the meeting was due to the help of Mr. Saunders, gamekeeper to Col. Sutton Nelthorpe. Tea was taken at the Angel Hotel, Brigg. The 243rd meeting was at Saltfleetby and Theddlethorpe on 10th June. The party, under the guidance of Miss Margery Barker and Miss W. M. Hall, with the help on the botanical side of the President and Miss E. J. Gibbons, devoted the day to a study of the flora of the sand-dunes and saltmarsh. Tea was taken at the Prussian Queen, Saltfleetby and reports were given on the day's observations. The south of the County was visited for the 244th meeting on 1st July at Grimsthorpe Park. This was a joint meeting with the Lincolnshire Artists' Society. The Park was visited by permission of the Earl of Ancaster, G.C.V.O., and members were taken over the interior of Grimsthorpe Castle. A wide variety of observations were made by the various sections represented. Tea was taken at the Black Horse in Grimsthorpe. A successful mid-week event on 27th July at Stapleford Woods, near Lincloln attracted a good number of members. This interesting woodland on the borders of Lincolnshire and Nottinghamshire was visited by permission of H.M. Forestry Commission. The President, Miss E. J. Gibbons, Mr. A. D. Bates and the forester-in-charge conducted the party. Much of this attractive area had been afforested and it seemed desirable that a small piece should be preserved as typical of the original

habitat. Tea was taken at Beacon Café, Newark. The 246th meeting at Twigmoor and Manton was a joint field-day with the Botanical Society of the British Isles meeting for the first time in North Lincolnshire. The two societies met at Greetwell Cross Roads. Many interesting botanical records were made and the survey included a visit to an interesting piece of rough land at Manton by permission of Mr. R. E. Day. Lt. Col. O. Sutton Nelthorpe again gave permission for the examination of the Twigmoor Warren. Tea was taken at the Blue Bell Hotel, Scunthorpe. On September 23rd the 247th meeting was at the Gibraltar Point Bird Observatory and Field Study Centre. Members joined with those of Lincolnshire Naturalists' Trust. Mr. and Mrs. A. E. Smith conducted the party and Mr. Smith gave a full account of the work so far accomplished at the Point and outlined the future plans of the Trust for nature conservation and the establishment of a Field Study Centre. Tea was taken at the Imperial Café, Skegness. The 248th meeting was the annual Fungus Foray, this year held at Denton Park, near Grantham, by kind permission of Sir Oliver Welby, Bart. The party was under the guidance of Miss G. M. Waterhouse and local arrangements had been made by Mr. P. P. L. Stevenson, of Denton. A full report of the meeting will be found later in these pages. Tea was taken at " The Chequers," Woolsthorpe.

References to detailed observations made at all these meetings are found in the Sectional Officers' Reports.

Lecture-Demonstrations.

A Microscope Symposium on January 14th was arranged by Professor C. G. C. Chesters. The theme of the meeting was micro-fungi and members had the opportunity to examine many species by hand-lens and through the microscope. Mounting methods were discussed by Professor Chesters. A joint meeting with the Lincolnshire Naturalists' Trust was held on 9th December. Dr. Bruce Campbell, Secretary of the British Trust for Ornithology, spoke on " The development of Field Ornithology in Britain and the work of the B.T.O." The lecture was illustrated by slides and a full discussion followed.

Sectional Officers' Reports.

A well-attended meeting was held in the Technical College on 11th November. Reports were presented by Miss E. J. Gibbons (Botany), Miss G. M. Waterhouse (Mycology), Mr. H. M. Small (General Entomology), Mr. E. C. Riggall (Coleoptera), Mr. S. A. Cox (Ornithology), Mr. G. W. Whatmough (Arachnology), and Mr. E. E. Steele, Mr. H. Auger and Mr. R. H. Hallam (Photography).

Annual General Meeting.

The Annual General Meeting was held at the Lincoln Technical College on 18th March. Dr. R. W. Butcher, of Bramcote, Notts.,

was elected President and Mr. R. K. Cornwallis, of Legsby, President-elect. The following six representatives were appointed to serve on the Council of the Trust : Professor H. H. Swinnerton, Dr. R. W. Butcher, Miss E. J. Gibbons, Mr. E. C. Riggall, Mr. R. K. Cornwallis, and Professor C. G. C. Chesters. It was agreed to arrange a mid-week meeting during the school holidays. The following Sub-Committee was appointed to look into the possibility of producing a County Flora : Miss E. J. Gibbons (Secretary), Mrs. M. Smith, Professor C. G. C. Chesters, Dr. R. W. Butcher and Mr. A. Roebuck. The Secretary of the Trust was elected a member of the Executive Committee of the Union ex-officio. The President delivered his address—" From logs and limbs to litter : a study in succession." The address was illustrated. The thanks of the Union to the President for his address and his great help during his year of office were expressed by Dr. R. Hull.

Membership.

The total membership shows an increase of one on last year. The details are as follows :—

Life Members	16	350
Ordinary Members	304	
Junior Members	26	
Groups in membership	4	

One Life Member, 33 Ordinary Members and 10 Junior Members were elected during the year. There have been rather heavier losses by resignation and lapsed subscriptions and ten members have died.

The following have been elected during 1950: —

Life Member :

Mr. Fred Brewster, 28 St. Hilda's Avenue, Grimsby (transfer from ordinary membership).

Ordinary Members :

Mrs. L. Brown, 16 Drury Lane, Lincoln.
Miss J. A. Burgess, " Viran," Lincoln Road, Dorrington.
Miss W. M. Cooper, 47 Westgate, Lincoln.
Mr. J. W. Denby, " Downholme," Barrow-on-Humber.
Mr. V. D. Dennison, B.Sc., Westbanks, Westcliffe Road, Ruskington.
Mr. J. H. Duddington, 95 East Common Lane, Scunthorpe.
Miss G. M. Ellers, 31 Laneham Street, Scunthorpe.
Miss D. Elliott, 1 Greestone Place, Lincoln.
Miss E. K. Elliott, 1 Greestone Place, Lincoln.
Mr. G. A. Farrow, M.R.SAN.I., M.S.I.A., Holly House, Ingham.
Sgt. J. Fenton, Sgts. Mess, New Barracks, Lincoln.
Mr. J. E. Goldsmith, N.D.H., 12 Canwick Hall, Lincoln.

Lt. Col. T. L. Ground, D.S.O., Wellone House, 99 Abbey Road, Grimsby.
Mr. B. C. Hall, 57 James Street, Louth.
Mr. F. H. Hill, Norland, Church Lane, Lincoln.
Mrs. B. M. Howitt, 41 Victoria Street, Newark.
Mr. R. L. Howitt, 41 Victoria Street, Newark.
Dr. R. A. Johnson, Woodville, South Ferriby, Barton-on-Humber.
Mrs. Langham, Great Ponton, Grantham.
Mr. L. Needham, 37 Wellington Street, Gainsborough.
Miss R. Nickerson, Whitegate House, Caistor.
Flt. Lt. N. W. Orr, Officers' Mess, R.A.F. Hemswell.
Mr. S. Paddison, 114 Oxford Street, Cleethorpes.
Miss M. E. Rhodes-Denton, M.R.S.T., 161 Sandsfield Lane, Gainsborough.
Dr. J. S. Rivers, Hall Lane, Benington, Boston.
Mr. J. Smithson, " Wetherby," Fen Road, Washingborough.
Mr. J. H. Smithson, " Glenthorne," Washingborough.
Mrs. K. Sowerby, " Hawthorn Hollow," Whitegate Hill, Caistor.
Miss D. M. Stewart, Aingarth, Wrawby Road, Brigg.
Mr. C. H. Walters, 12 Massey Road, Lincoln.
Mr. S. N. Watson, 11 Edge Avenue, Grimsby.
Mrs. D. I. Willey, 48 Ropery Road, Gainsborough.
Mr. E. V. Wray, " Selwood," Humberstone, Nr. Grimsby.

JUNIOR MEMBERS :

D. S. Buck, 103 Morton Terrace, Gainsborough.
P. Denniss, South Reston, Louth.
D. J. Hansord, 16 St. Andrew's Drive, Lincoln.
M. J. H. Hill, Silver Street, Winteringham.
N. Laws, Junr., 73 Coleridge Gardens, Lincoln.
R. Martin, 1 St. Heliers Road, Cleethorpes.
Miss B. D. Mason, 160 Moorgate Hill, Retford.
J. K. Shaw, 54 Church Lane, Laceby.
Miss P. E. Smithson, " Glenthorne," Washingborough.
D. C. Vanson, Bradley Woods, Grimsby.

The Union has lost eight of its members by death during the year. Mr. Ashley K. Maples, of Spalding, died in February. He had been a member since 1910 and through his association with the Spalding Gentlemen's Society had been responsible for stimulating much interest in natural history in the south of the County. The well-known Bird Museum at Spalding was his great interest. Miss E. F. Noel, of London, a very competent botanist, who had been a member since 1928 when she was resident in Louth, died in April. She joined as a Life Member in 1943. Mr. Richard Hutchinson, of Willoughton, and Mrs. E. Withers, of Lincoln, died in April. Another of our oldest members, Captain W. A. Cragg, of Threekingham, died in October in his 91st year. He became a member of the Union in 1903 and on several occasions had invited the members to meet on his estates

at Spanby and Threekingham. Mr. J. R. McKnight, of Boston, died in July. He was a keen ornithologist and since the time he became a member in 1934 contributed regularly to our records. He would, no doubt, have become a President of the Union but for his heavy duties as Director of Education for Holland ; his presence at our field meetings has been greatly missed. In November we lost Mr. Walter Johnson of St. Austell ; although out of the County for the last twenty years his interest never diminished and he contributed much to our knowledge of the geology and folk-lore. We also lost a member of long association in the death in November of Miss E. E. Fowler, of Winterton. She joined in 1919 and attended the field meetings regularly. Mr. C. F. B. Shillito, of Brocklesby, Secretary of the Geological Section, died in December. He made a unique contribution to the study of geology. His patient research into the micro-fauna of the Chalk and his attention to important Holocene deposits in the north-east of the County, together with his remarkable gift for mounting his slides and recording and photographing evidence from exposures, have made his work in the field outstanding. It is greatly to be hoped that this material will be published as a permanent memorial to his life's work. Also in December Rev. F. M. Yglesias died at his home in Cambridge. He left Lincoln in 1933 but remained a member and had a great interest in the flora of the County in which he lived for forty years.

Once again it is my pleasure to record the thanks of the Union to many who have contributed to the success of the year's work. To those who have so readily granted us leave to enter their estates for meetings ; to others who have made the local arrangements and attended to the small details necessary for the smooth running of a Society's programme, we are most grateful. In particular I must mention two volunteers, Miss E. W. Montgomery and Miss G. M. Laws, who have assisted me with the volume of work associated with the monthly dispatch of circulars. Their ready help has meant a great deal to me and has made the secretarial duties much easier to manage. To our President we owe a great debt of gratitude : he has attended our meetings and contributed much to our deliberations both in Committee and in full session. We are particularly grateful for his keen interest in the project of a County Flora which we hope he may assist us to achieve before so long.

SECTIONAL OFFICERS' REPORTS.

BOTANY

Miss E. J. Gibbons.

A very full flowering year with no drought has been excellent for taking many notes of plants, and more petrol has allowed for many places to be visited.

The first field meeting, at Twigmoor, started in a downpour but after it cleared up some interesting ground was explored. The soil is blown sand, covering limestone of which the ridge is formed. One desert-like area produced *Teesdalia* and Wood Sage (*Teucrium Scorodonia*), but apparently nothing else. Bog Myrtle (*Myrica Gale*) was still in flower in a marshy spot where *Carex gracilis* was also seen. Three sorts of Dog Violet were seen on the soils suitable for them, and in a patch of ground where the limestone was exposed were Primroses (*Primula vulgaris*), Yellow Pimpernel (*Lysimachia nemorum*), and Dog's Mercury (*Mercurialis perennis*).

The next meeting, at Saltfleetby, was in good weather, and the sandhills produced their usual plants. The best finds were *Thalictrum minus*, White Horehound (*Marrubium vulgare*) and *Orchis praetermissa*.

Grimsthorpe would have repaid a longer time to search beyond the surroundings of the Castle. Meadow Cranesbill (*Geranium pratense*), Purple Milk Vetch (*Astragalus danicus*), Clustered Campanula (*C. glomerata*), Deadly Nightshade (*Atropa Belladonna*), Lesser Toadflax (*Linaria minor*), and Pyramidal Orchis (*O. pyramidalis*) pleased those who found them.

The Stapleford meeting on the edge of Nottinghamshire was in country not worked for many years. Stapleford Wood is being cleared and replanted by the Forestry Commission after being felled some years ago. Stapleford Moor was used as a range by the Army, and is also being planted. Parts of it are entirely bracken, but an open damp spot with a dry pond produced very interesting plants : Marsh Stitchwort (*Stellaria palustris*), Procumbent Cinquefoil (*Potentilla procumbens*), Great Burnet (*Poterium officinale*), Mountain Ash (*Pyrus Aucuparia*), Heath Bedstraw (*Galium saxatile*), Devil's-bit (*Scabiosa Succisa*), Sneezewort (*Achillea Ptarmica*), Wood Groundsel (*Senecio sylvaticus*), Meadow Thistle (*Cnicus pratensis*), Ling (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Bog Pimpernel (*Anagallis tenella*), Marsh Speedwell (*Veronica scutellata*) unusually blue, Lousewort (*Pedicularis syvlatica*), White Birch (*Betula pubescens*), Aspen (*Populus tremula*). Heath Rush (*Juncus squarrosus*) abundant, as were *Carex binervis* and *pilulifera* and *Aira flexuosa*. *Carex demissa* (*flava*) was also found besides other commoner sedges.

The August meeting was honoured by about fifteen members of the Botanical Society of the British Isles, who were visiting the Scunthorpe district from August 18th to 21st. Much of interest was found on Manton Common. All three heathers made a good show, and a big area with Marsh Gentian (*G. Pneumonanthe*) gave a thrill to

all who saw it. Bog Myrtle (*Myrica*), Marsh Cinquefoil (*Potentilla palustris*), Heath Milkwort (*Polygala serpyllacea*), Trailing St. John's Wort (*Hypericum humifusum*), Deer's-hair and Floating Club Rush (*Scirpus caespitosus* and *fluitans*), Whitish Sedge (*Carex curta*) and a pale pinkish form of Skullcap (*Scutellaria galericulata*) were the chief plants of interest. Further finds by the B.S.B.I. on Sunday and Monday will be recorded.

Gibraltar Point was visited in September, when the reappearance of the Horned Poppy (*Glaucium luteum*) was shown by Mr. and Mrs. A. E. Smith.

The Fungus foray at Denton Park in October was too late for much to be seen, but Deadly Nightshade (*Atropa Belladonna*), Shining and Curly Pondweeds (*Potamogeton lucens* and *crispus*) and Mare's-tail (*Hippuris*) were still to be found near and in the lake.

The new committee which has been formed to look into the question of publishing an up-to-date list of Lincolnshire plants has had one meeting. Plans as to what form this should take were discussed and it was agreed that a start should be made on the plants of the coast. Much work will be necessary before anything will be ready for the printer. Anyone willing to help with reliable records for the area will be welcomed. A number of records of the sand-dune plants have been made by past workers, but further work needs to be done on the dykes and hedgerows, if any, and arable fields near the coast.

New District Records, 1950 :—

Anthoxanthum puellii or *aristatum*	1	B.S.B.I.
Betula pubescens	13	L.N.U.
Catabrosa aquatica	4	E.J.G.
Ceratophyllum demersum	2	B.S.B.I.
Cuscuta epithymum	2	R. C. L. Howitt.
Eleocharis acicularis	1	E.J.G. or B.S.B.I.
Hypochaeris glabra	2	B.S.B.I.
" "	11	E.J.G. and B.M. Chalk.
Impatiens glandulifera	2	E.J.G.
Lactuca serriola	2	B.S.B.I.
Orchis ericetorum	7	E.J.G.
Potamogeton pusillus	2	B.S.B.I.
Rumex palustris	5	E.J.G. and B. M. Chalk.
Sagina filicaulis	2	B.S.B.I.
Sanicula Europaea	3	E.J.G.
Scirpus caespitosus	2	M. E. Gibbons.
Senecio squalidus	1	E.J.G. and M.E.G.
" "	5	E.J.G. and M.E.G.
Sieglinia decumbens	6	E.J.G.
Sisymbrium Irio	5	R. W. Butcher.
Vicia gracilis	1	B.S.B.I.

MYCOLOGY.

Miss G. M. Waterhouse, M.Sc.

This year good collections have been received from Mr. Geo. Allison from division 11, Miss M. N. Tyson from divisions 2, 3, 7, 8 and 9, Miss G. Prestwood from division 8, Mrs. M. Smith from division 11, Miss M. M. Haslam from division 18, and Mr. E. R. Wallace from divisions 1, 2, 3, 7, 10, and 13. Single specimens have come from Mr. E. C. Riggall, Miss J. Riggall, Mr. J. A. Cox, Miss R. Nickerson, Miss E. Taylor and Mr. F. T. Baker. Lists were sent by Mr. T. H. Court, Miss Tyson, and Mr. A. N. Jones, while two photographers, Mr. Bedford and Mr. Rowson, submitted very lovely prints of fungi. As a result we have acquired twelve new records for the county and 68 new divisional records. I thank these members cordially for their excellent help.

On the whole it has been a good year for fungi, particularly towards the latter part when the wet weather made itself felt. Consequently we had a good foray in Denton Park (kindly opened to us by Sir Oliver Welby) on October 14th. Possibly it would have been even better a little later, but then we might not have had the good weather that we had on the 14th. In the grounds of Denton Park there are four ponds, and the woods, some beech and others of mixed trees, come right down to the water's edge, thus forming ideal fungus terrain. In this delightful setting a good collection of fungi was made. The prize specimen was a perfect clump of the edible oyster mushroom (*Pleurotus ostreatus*). This pearly-grey bracket fungus with white gills was growing in profusion on the cut stump of a Horse Chestnut. Three fungi were found which proved to be new records for the county. More specimens were added to the day's collection while the party waited for tea at Woolsthorpe. The yellow, red, and white *Hygrophorus* spp. (*H. psittacinus*, *H. coccineus*, and *H. virgineus*) found in the pasture there were all new records for division 15. Altogether 72 specimens were named, and in addition to the three county records there were 38 for division 15.

The total for the year is 15 new for the county and 106 for the divisions.

Mr. T. Burton, F.L.S., of Southwell, who has been making identifications of fungi sent to him by Mr. Allison for a number of years, has very kindly sent his list of fungi found in the adjacent part of Lincolnshire.

FUNGUS FORAY, DENTON PARK

October 14th, 1950.

New records for the county.

Lepiota gracilis (Quél.) Rea
Boletus viscidus (L.) Fr.

Polyporus fumosus (Pers.) Fr.
Puccinia bromina Erikss. on *Festuca gigantea* (L.) Vill.

New records for division 15.

Scleroderma aurantium Pers.
Lycoperdon depressum Bon.
Tricholoma nudum Fr.
Tricholoma terreum Fr.
Clitocybe nebularis (Batsch) Fr.
Clitocybe vibecina Fr.
Mycena pura (Pers.) Fr.
Marasmius peronatus (Bolt.) Fr.
Marasmius dryophilus (Bull.) Karst.
Hygrophorus psittacinus (Schaeff.) Fr.
Hygrophorus virgineus (Wulf.) Fr.
Hygrophorus coccineus (Schaeff.) Fr.
Lactarius subdulcis (Pers.) Fr.
Pluteus cervinus (Schaeff.) Fr.
Pholiota adiposa Fr.
Hebeloma crustuliniforme (Bull.) Fr.
Crepidotus mollis (Schaeff.) Fr.
Cortinarius violaceus (Fr.)
Paxillus involutus (Batsch) Fr.
Stropharia aeruginosa (Curtis) Fr.
Psathyrella disseminata (Pers.) Fr.
Panaeolus campanulatus (L.) Fr.
Coprinus comatus (*Fl. Dan.*) Fr. under beech.
Coprinus atramentarius (Bull.) Fr. under horse chestnut.
Coprinus plicatilis (Curt.) Fr.
Fomes ferruginosus (Schrad.) Mass.
Ganoderma applanatum (Pers.) Pat. on oak and sycamore.
Irpex obliquus (Schrad.) Fr.
Phlebia merismoides Fr.
Tremella lutescens Pers.
Tremella albida (Huds.) Fr.
Phragmidium violaceum (Schultz) Wint. on blackberry.
Kuehneola uredinis (Link) Arth. on blackberry.
Bulgaria inquinans Fr.
Rhytisma acerinum Fr.
Helvella crispa Fr.
Coryne sarcoides (Jacq.) Tul.
Dasyscypha soppittii Mass. on oak leaves.
Helotium fructigena (Bull.) on beech cupule.
Physarum nutans Pers.

Other identifications—not new records.

Lycoperdon perlatum Pers. under horse chestnut.
Lycoperdon pyriforme (Schaeff.) Pers.

Armillaria mellea (Vahl.) Fr.
Armillaria mucida (Schrad.) Fr.
Tricholoma personatum Fr.
Clitocybe tabescens (Scop.) Bres.
Mycena galopus (Pers.) Fr.
Mycena galericulata (Scop.) Fr.
Collybia radicata (Rehl) Berk.
Pleurotus ostreatus (Jacq.) Fr. on horse chestnut.
Hygrophorus pratensis (Pers.) Fr.
Pholiota squarrosa (Mull.) Fr.
Pholiota praecox (Pers.) Fr.
Hypholoma fasciculare (Huds.) Fr. on elm.
Psalliota campestris (L.) Fr.
Coprinus micaceus (Bull.) Fr.
Trametes rubescens (A. & S.) Fr. on birch.
Polyporus squamosus Fr. on horse chestnut stump and ash.
Polystictus versicolor (L.) Fr.
Stereum purpureum Pers.
Stereum hirsutum (Willd.) Fr.
Dacromyces deliquescens (Bull.) Duby.
Auricularia auricula-judae (L.) Schroet.
Coleosporium tussilaginis (Pers.) Lév. on *Tussilago farfara* L.
Triphragmium aulmariae (DC) Link on *Filipendula ulmaria* (L.) Maxim.
Puccinia violae DC on *Viola* sp.
Xylaria polymorpha (Fr.) Grev.
Xylaria hypoxylon (Fr.) Grev. on elm.
Nectria cinnabarina Fr. on horse chestnut.
Daldinia concentrica (Fr.) Ces. & de Not.
Diatrype disciformis Fr. on beech.

OTHER NEW RECORDS, 1950

New records for the county.

Pleurotus dryinus (Pers.) Fr. on ash	7
Clavaria straminea Cotton	7
Clavaria dissipabilis Britzl. in grass	7, 11
Tremella lutescens Pers.	11
Puccinia secalina Grove II on *Lycopsis arvensis*	7
Laboulbenia vulgaris Peyr. on *Bembidion dentellum*	8 (E.C.R.)
Ramularia agrestis Sacc. on *Viola tricolor*	13
Ramularia vallisumbrosae Cav. on *Narcissus*	9
Septoria hydrocotyles Desm. on *Hydrocotyle vulgaris*	2
Peronospora ranunculi Gaum. on *Ranunculus bulbosus*	7
Peronospora debaryi Salm. and Ware on *Urtica urens*	1
Brefeldia maxima Rost.	8

New divisional records.

Bovista plumbea Fr.	8
Lycoperdon pyriforme (Schaeff.) Pers.	7
Lycoperdon caelatum (Bull.) Fr.	7
Lycoperdon cepaeforme (Bull.) Lloyd	8, 11
Geaster triplex Jungh. on sand dunes	11
Cyathus olla (Batsch) Pers.	7, 11
Lepiota procera (Scop.) Fr.	8
Lepiota rhacodes (Vitt.) Fr.	8
Lepiota acutesquamosa (Wienm.) Fr. in a garden	11
Tricholoma nudum Fr.	7
Tricholoma terreum Fr.	8
Clitocybe dealbata (Sow.) Fr.	11
Mycena pura (Pers.) Fr.	18
Mycena cinerella Karst.	11
Collybia velutipes (Curt.) Fr.	15
Marasmius rotula (Scop.) Fr.	11
Marasmius dryophilus (Bull.) Karst.	7
Omphalia gracilis Quél.	15
Pleurotus cornucopiae (Paul.) Pers.	10, 11
Hygrophorus conicus Fr. on sand dunes	11
Hygrophorus calyptraeformis Berk.	11
Hygrophorus puniceus Fr.	8
Hygrophorus chlorophanus Fr.	7, 8, 11
Hygrophorus pratensis (Pers.) Fr. in pasture	7, 11
Lactarius plumbeus Fr.	7
Russula lepida Fr.	7, 8
Russula heterophylla Fr.	7
Russula rubra (Kromb.) Bres.	8
Entoloma clypeatum (L.) Fr. in grass	8, 11
Pholiota mutabilis (Schaeff.) Fr.	2
Tubaria furfuracea (Pers.) Gillet	7, 11
Inocybe geophylla (Sow.) Fr.	15
Inocbye geophylla var. *lilacina* Fr.	15
Stropharia coronilla (Bull.) Fr. on sand dunes	11
Stropharia aeruginosa (Curt.) Fr. in pasture	11
Stropharia semiglobata (Batsch) Fr.	15
Psilocybe foenisecii (Pers.) Fr.	18
Psilocybe semilanceata Fr.	7
Panaeolus retirugis Fr.	8
Psalliota campestris (L.) Fr.	18
Psalliota arvensis (Schaeff.) Fr.	7
Coprinus comatus (*Fl. Dan.*) Fr.	7
Boletus bovinus (L.) Fr.	8
Lenzites betulina (L.) Fr. on birch	15
Polyporus squamosus Fr. on elm	11
Ganoderma applanata (Pers.) Pat. on beech	11
Polystictus versicolor (L.) Fr.	11

Clavaria fusiformis (Sow.) Fr. in pasture	11
Clavaria luteoalba Rea	7
Clavaria vermicularis Fr.	7
Clavaria persimilis Cotton	8
Clavaria corniculata (Schaeff.) Fr.	7
Auricularia mesenterica (Dicks.) Fr.	8
Stereum spadiceum Pers.	11
Puccinia malvacearum Mont. on mallow	15
Puccinia schoeleriana Plow. & Mag. on ragwort	9
Puccinia antirrhini Diet. & Holw. on antirrhinum	3
Coryne sarcoides (Jacq.) Tul.	11
Bulgaria inquinans Fr.	7
Aleuria aurantia (Pers.) Fuck. among stubble	6, 15
Peziza vesiculosa Bull.	8, 11
Ascophanus granulatus (Bull.) Speg.	11
Geoglossum difforme Fr.	8
Xylaria polymorpha (Fr.) Grev.	9 (J.A.C.)
Xylaria hypoxylon (Fr.) Grev.	11
Nectria cinnabarina Fr.	7, 11
Epichloe typhina (Pers.) Tul. on *Dactylis glomerata*	7
Peronospora arborescens (Berk.) de Bary on *Papaver dubium*	3, 13

Lincolnshire Freshwater Algae.

Mr. E. Wainwright notes the occurrence of a new alga for Lincolnshire *Hydrodictyon utriculatum* (Water net). It was found by Mr. Bruce C. James in a ballast pit about one mile south-east of Sleaford. The alga was the host of large numbers of infusoria which were living in the central cavity and feeding on the plant. It occurred during the months of July and August, 1949. The identification was by Dr. S. H. Robinson.

ENTOMOLOGY

H. M. Small.

Butterflies. The 1950 season has not been a very good one for butterflies; some of them, the fritillaries in particular, have been almost absent in the imago state. The weather in the early part of the year was most unfavourable, causing the earlier insects to be on the wing at a later date than usual. There was a notable absence of June butterflies.

The White Admiral (*L. camilla*) is still spreading in the county. It is reported from the Alford district, a new locality, by Mr. F. L. Kirk and from woods in the Market Rasen area by Mr. T. H. Court, who noted one specimen living among trees alongside the Legsby Road from the first week in July until August 2nd. It has been fairly plentiful in the Old Wood at Skellingthorpe this year as witnessed by several members. The Rev. G. Houlden saw one in St. Peter-at-

Gowts Vicarage garden in the Lincoln High Street, the first time he has seen one there and Mr. Court saw one flying around the trees on Market Rasen Railway Station. Both these White Admirals were well away from their usual habitat which may indicate that they are still trying to increase their range. Normally, they do not wander far from their home in the woodland rides.

Commas (*P.c-album*) have been generally scarce, Red Admirals (*V. atalanta*) were more plentiful in the autumn. Mr. Kirk noted Painted Ladies (*V. cardui*) as being fairly plentiful in the Louth and Alford areas although few reports have come in for this insect from other parts of the county.

Clouded Yellows (*C. croceus*) have only occurred oddly. Brimstones (*G. rhamni*) were plentiful at Skellingthorpe in early April.

Remarking on the scarcity of fritillaries, the Rev. G. Houlden says one of the few he saw last year was a Dark Green Fritillary (*A. aglaia*) flying over the sand dunes at Mablethorpe. Only one or two Pearl-bordered Fritillaries (*A. euphrosyne*) and none of the small colony of Marsh Fritillaries (*M. aurinia*) have been seen at Skellingthorpe.

The Grayling (*E. semele*) was plentiful on Manton Common during August.

Purple Hairstreaks (*T. quercus*) and Green Hairstreaks (*C. rubi*) were seen in the Alford district by Mr. F. L. Kirk but no White-Letter Hairstreaks (*S. w-album*). The latter species was reported from Handal Wood in the north of the county by Mr. M. P. Gooseman.

The Holly Blue (*C. argiolus*) was commoner at Alford in August than in the earlier brood according to Mr. Kirk.

Mr. J. H. Duddington bred a large number of Small Coppers (*L. phlaeas*) taken from a colony near Scunthorpe, in the hope of obtaining the albino variety, an example of which he had seen there on a previous occasion. Although unsuccessful in obtaining an albino he reared several specimens in which the coppery ground colour on the wings was replaced by straw colour, and others which varied in the greater or lesser extent of the black markings.

The Chequered Skippers (*C. palaemon*) have not been quite so plentiful this year at Skellingthorpe, and did not appear on the wing until May 23rd. Two were seen in nearby Doddington Wood on May 29th by the Rev. Houlden.

Moths.—Sugaring did not prove very successful and only produced a few of the more common moths. Light traps were more productive and there were a number of reports of the finding of various larvae.

It has been an outstanding year on account of the large number of larvae and chrysalids of the Death's Head Hawk Moth (*A. atropos*) which have been found in the county. Altogether well over one

hundred have been reported over a very wide area which included Snitterby, Waddingham, the Louth and Alford area, Lincoln where it was found inside the City Boundary for the first time, Saxilby, Doddington, Washingborough, Nocton and the greater part of the fenland surrounding Boston where many acres of potatoes are grown, on the leaves of which the larvae feed. Caterpillars were being found from early August onward, others in the chrysalis state were found when potato crops were lifted in October.

The Convolvulus Hawk (*H. convolvuli*) has been reported from Goxhill, Well and Gibraltar Point (September 5th) where one was found in the trapping-box of the Heligoland Bird Trap at the Observatory.

A number of Humming-bird Hawks (*M. stellatarum*) have been noted. On August 14th Mr. T. H. Court found the Small Elephant Hawk (*M. porcellus*) at Market Rasen. A Privet Hawk (*S. ligustri*) was seen at Skellingthorpe in the early Summer; both this and *M. porcellus* are rare in Lincolnshire.

Larvae of the Sallow Kitten (*C. furcula*) were found on Manton Common on August 19th along with those of the Small Chocolate Tip (*P. pigra*).

Mr. M. P. Gooseman reports larvae of the Scarce Vapourer (*O. gonostigma*) from Newton-on-Trent, larvae and moths of the Wood Tiger (*P. plantaginis*) from Wrawby Moor, and at Messingham on October 11th he counted over sixty larvae of the Ruby Tiger (*P. fuliginosa*) in one small area and saw many more.

Thousands of larvae of the Cinnabar Moth (*H. jacobaeae*) were present at Gibraltar Point; Mr. Court notes that they practically cleaned up all the Ragwort there. Mr. F. L. Kirk saw Fox Moth Larvae (*M. rubi*) there on September 23rd, feeding on Sea Buckthorn.

Mr. Kirk had some success with his light trap at Alford during July and August and captured among other things the Scalloped Oak (*C. elinguaria*) and a male Lappet (*G. quercifolia*). A few years ago the Lappet was rather rare in the county but in recent years it has spread and now seems to be firmly established.

Mr. J. H. Duddington found several interesting moths in the Scunthorpe area, notably the Pearly Underwing (*A. saucia*), the Portland Moth (*A. praecox*) and the Brindled Ochre (*D. templi*). The last two are new to the county list and are predominantly coastal species.

Mr. T. C. Taylor's list from Skellingthorpe includes the Small Seraphim (*L. sexalista*), the Spinach (*L. associata*) and the Small Blood-vein (*A. imitaria*) which he notes was plentiful. He also captured a Scarce Silver-lines (*H. bicolorana*) at Lincoln.

Orange Underwings (*B. parthenias*) and Spring Ushers (*H. leucophaearia*) were noted by Mr. C. G. Else at Twigmoor, the first time he has seen them there.

Miss E. J. Gibbons reported the finding of various larvae at Holton-le-Moor including those of the Goat Moth (*C. ligniperda*).

Dragonflies.—Two Dragonflies new to Lincolnshire have been found this year bringing the total number of species that have been recorded in the county up to twenty-three.

The new ones are the Black-lined Orthetrum (*O. cancellatum*) which was on the wing in Grimsthorpe Park on July 1st and the scarce Green Lestes (*L. dryas*) a female of which species was captured on a common in the north of the county by Mr. M. P. Gooseman. This insect, which is very similar to *Lestes sponsa* might easily have been overlooked had not Miss Cynthia Longfield, the well-known authority on Dragonflies, been there to identify it. This locality is the most northerly one in the British Isles from which this rare little Damsel-fly has been reported.

Hymenoptera.—The Ichneumon *Rhyssa persuasoria* occurred at Walmsgate on July 6th and at Grimsthorpe Park on July 1st.

A female Birch Sawfly (*C. femorata*) was captured at Swallowbeck near Lincoln. This insect although not included in the preliminary list of Lincolnshire Sawflies published in the L.N.U. Transactions for 1937, also occurs at Woodhall Spa where Mr. F. L. Kirk records it as regular in its appearance.

COLEOPTERA

E. C. Riggall.

The past year has been noteworthy for a scarcity of the commoner longicornes. Searching of May blossom and umbelliferae proved ineffective. Throughout the whole season I did not see a single specimen of *Strangalia maculata* which in past seasons could be found in abundance along the outskirts of woods. I think the sudden disappearance of the commoner longicornes is more attributable to weather conditions than to extensive timber felling. *Rhagium mordax* which favours old logs and stumps from which the bark has decayed should not have been affected by felling operations as there are still plenty of rotting stumps and old logs in the localities the beetle formerly favoured. In the absence of the commoner species two usually scarce longicornes have been collected and Mr. Kirk has sent me a rare foreign visitor of this group. In regard to other families I think our county coleoptera has begun to diminish through the effects of intensive farming operations. I do not think we are likely ever again to hear from the Wainfleet area of an army of *Phaedon cochleariae* crossing a farm road in such numbers that an ink-coloured patch remained for several days. Nevetheless, through the kindness of Union members who have sent more specimens than ever before I am once more able to report upon a good number of species.

In January, Mr. Whatmough sent specimens of *Ptinus tectus* which he had found in syrup of hypophosphates. The species has

been previously recorded in the Wallace-Thornley List, and noted therein as an introduced species.

In February, the Great Eau overflowed near Withern and I was able to obtain a gathering of refuse from floods extending over the surrounding fields. The flotsam from the flooded fields proved more productive than previous gatherings from the river banks and contained a vast number of beetles, mostly of common species. I found one specimen of *Psammoecus bipunctatus* which appears new to the county. This tiny coleopteron frequents marshy places and can be obtained in abundance at Wicken Fen. It is surprising that a large gathering of refuse from an apparently favourable locality in our own county could produce but one specimen. This material also contained a great many specimens of *Bembidion obtusum*. One of these had a mite gripped in its jaws and ran about rather like a terrier dog carrying a rat. When enclosed for observation the beetle devoured every vestige of its prey, including the head which had been severed and apparently set on one side for a final delicacy. In contrast to the rather sleepy beetles which can be shaken from moss during the winter and early spring, beetles collected from flood refuse are extremely active and voracious and will soon devour one another if the material containing them is retained too long.

In April, Mr. Whatmough sent dead specimens of *Stegobium paniceum* which he had found in poppy heads. This cosmopolitan species, occurring in medical stores, etc., in the larger towns, appears to have spread into Lincolnshire. I can find no previous record. Mr. Whatmough wondered if the poppy heads had proved unhealthy to these beetles, but as Mr. J. H. White sent specimens from Leicestershire which had been bred from cayenne pepper the species would appear very hardy.

In one of his books Dr. Joy recommends the collector to examine the interior of windows. I have not found windows in my district a very productive collecting ground, but in May I took one specimen of *Ptinus sexpunctatus* from my bathroom window. This species is sometimes found in houses and old wood, and has been reported to have turned up in numbers in the nest of a Humble bee. Fowler described the species as not common and it appears to be new to the county.

Toward the end of the month Mr. Taylor collected a specimen of the longicorn *Rhagium mordax* from a telegraph pole at Skellingthorpe, and early in June I saw one other specimen on May blossom. I could find no other examples of this species throughout the remaining year. *Rhagium mordax* can be easily separated from others in the genus by the two glabrous patches on the elytra. This insect possesses great strength in its jaws and neck. Canon Fowler carried out some weight lifting experiments with this species. He found that *mordax* when held between the thumb and finger could hold a weight of five ounces

suspended from its jaws. This feat is equivalent to a man of eleven stones supporting thirty-seven and a half tons.

On June 1st I netted a flying beetle in Skellingthorpe Wood which proved to be a male of *Corymbites pecticornis*. The species is not common in the county but there are old records from Langworth Wood and Newton-on-Trent.

On the third of the month I beat specimens of *Apion ulicis* from gorse near Baumber. The Gorse Weevil is a seed feeder. The female bores a hole with her snout in the young pod of the gorse plant, and then turns round and uses the other end of her body to insert eggs into the interior of the pod. The larvae subsequently feed on the seeds and then turn to pupae inside the pod. Most people will be familiar with the sound of gorse pods bursting open in the sunshine. Infected pods eject living beetles in the place of seeds. In a wet season, such as the past year, the splitting open is delayed, but the weevils seem able to survive within the pod, and make no attempt to bore their way to freedom, preferring to wait and be exploded into the outer world. In some districts the beetle appears to be able to destroy about ninety per cent of the gorse seed. The life history of this beetle is very interesting and specimens are easy to find.

On July 17th I noted many dead specimens of the common *Gastrophysa polygoni* in tidal rubbish near Chapel St. Leonards which seemed to indicate a migratory movement. The name of the genus is derived from a peculiarity of the female. When impregnated the abdomen of the latter becomes greatly swollen often exceeding the elytra. *Polygoni* is associated with Knot Grass, *Polygonum aviculare.*

On June 19th near Great Carlton an evening sweep of dykeside herbage secured a single specimen of *Gymnetron pascuorum.* This species was new to me, but there is an old record from Freshney Bog in 1908, with a note that the species has not been found there again. The beetle would seem to be rather scarce and local in Lincolnshire. The larva of the genus, like those of the gorse weevil, are seed feeders and undergo their transformations in the seed vessels of various plants. *Pascuorum* is associated with the seed heads of Ribwort Plantain, *Plantago lanceolata.*

On June 24th at Freshney Bog I found an interesting variety of *Phyllobius pomaceus* which had dull scales of a pale lavender hue. The type has golden green or shining green scales, and is common in the county on Stinging Nettle, *Urtica dioica.* On the same day my wife pointed out a fine specimen of the large weevil *Cryptorhynchidius lapathi* at rest on a reed. Before we could make any movement of approach the beetle let go its hold and dropped into the undergrowth. Search for it among reed litter was unavailing. I was disappointed to lose this specimen but during the next month I was able to collect the species from a roadside bush near Zwartsluis in Holland. Fowler suggests that the beetle prefers twilight, and adds that he has found the

males and females together in numbers in an osier bed at Repton, Burton-on-Trent, at half-past four or five on a summer's morning; but they appeared to be scarce in the middle of the day or in the afternoon in the same locality. The beetle is a rather large, dull, rough insect, of a variegated black and yellowish-white colour. The snout is of moderate length fitting closely below the thorax when the insect is at rest. Hence the former generic name '*Cryptorrhynchus*,' or 'hidden snout'. The insect attacks poplars and willows and has a cycle extending over a period of two years. It has been recorded from Freshney Bogs, Torksey, and Mablethorpe. and Mr. C. G. Else took a specimen at the former locality in 1944. Wallace and Thornley observe that the beetle is of 'rare occurrence.'

On the 29th of June I beat a male specimen of *Tetrops praeusta* from an oak tree on the edge of Legbourne Wood. Last year I was able to exhibit a female of this species which had been sent by Mr. Taylor. The record from Legbourne seems to be another instance of a scarce longicorne turning up during a season when the commoner ones are almost absent.

During the July meeting at Grimsthorpe Castle I found a single specimen of *Hoplia philanthus* at rest on a grass stem. This small, robust, dark-coloured chafer has beautiful silvery scales and makes an attractive microscope object. The beetle is remarkable for the habit of flying for only a short time in the hottest part of the day, and then hiding in flowers. There are old records from Linwood and Holton-le-Clay but the species is evidently scarce in the county. During this month Mr. Kirk sent a beautiful specimen of *Plagionotus arcuatus*. This species is sometimes found in this country in decaying trees and old posts but is very rare. Mr. Kirk kindly established that the beetle he sent had been bred from a larva found in some foreign wood which had been delivered to a Sutton-on-Sea builder.

On August 1st a visitor to Lincolnshire found a male specimen of the fine longicorne *Saperda carcharias* on a car which had been parked at Sutton-on-Sea, and very kindly sent the beetle to me. Mr. Kirk has previously recorded *carcharias* from the Lincolnshire coast, and there are old records from Skegness and Lincoln. *Saperda carcharias* is a poplar, willow, and aspen borer, and the beetles appear on the wing in June and July. Eggs are laid in niches cut in the bark and the tree is attacked near the ground. The infected tree develops a large irregular swelling the bark of which is fissured. It is easy to appreciate that saplings attacked and perforated in this way are easily broken by the wind.

In August I found specimens of *Harpalus anxius* associating with ants under a piece of decaying wood on Manton Common. Other specimens were collected from open sandy spaces where there was no herbage. The beetles were beneath small flat stones and as the sun was for once shining from a cloudless sky the stones and sand were almost too hot to touch. This species appears to be able to withstand

an astonishing degree of heat. *Harpalus anxius* appears to be a new record for the county. Fowler states that it is abundant on sandy coasts in the south of England but apparently not found in the north. It is interesting to record another normally coastal species from the inland district of Manton where several other beetles associated with the seaboard have been noted.

At Manton on August 7th my daughter found a *Lycoperdon fungus* which contained a lively assembly of the beetle *Pocadius ferrugineus*. On being disturbed the majority of the beetles escaped in flight, but I managed to secure one or two. The insect was new to me but has been recorded from both halves of the county.

On September 4th Mr. F. T. Baker observed hundreds of specimens of *Aegialia arenaria* attempting to crawl up the east side of the dunes during a strong south gale. The beetles were being blown along by the wind but continually struggling to gain shelter. No doubt high winds play some part in the distribution of this species. As the beetle possesses only rudimentary wings the swarm could not have been due to migration. If this feeble shore dwelling coleopteron could fly great numbers would be blown out to sea. It seems possible that in a remote past the beetle was capable of some form of flight and only those that refrained from using the gift survived and gradually produced the present almost apterous race. Immature specimens are often a pleasing reddish colour and are mistaken for *Aegialia rufa*. *Aegialia arenaria* has been previously recorded from the north of the county.

On September 8th I noticed a specimen of *Harpalus* which seemed to have unfamiliar colouration. The beetle was sunning itself on the face of a sandstone quarry at North Willingham. I had already collected another beetle of the order Brachyelytra and having only one tube enclosed both insects with a tuft of grass for foothold. On reaching home I found that the *Harpalus* had devoured the other beetle and no fragment remained. The survivor proved to be an immature specimen of *Harpalus tardus* still soft and not yet fully coloured. I thought the predatory instincts of a beetle so newly emerged were noteworthy. The species is common on the Lincolnshire coast.

During the Union Meeting at Gibraltar Point on September 23rd I collected a number of specimens of what appeared to be *Pogonus chalceus*, a narrow, brassy species which delights in salt or semi-saline marshes. *Pogonus chalceus* is very common with us and it is curious to note that Fowler stated he had never seen this beetle on the Lincolnshire coast. In the Wallace-Thornley records *Pogonus chalceus* is described as the most abundant beetle on the Wash-foreshore. Of an associated species *Pogonus litoralis* Wallace and Thornley states : " Lincolnshire Coast, Dawson—We have found no recent record." I was accordingly very interested to find one specimen of *Pogonus litoralis* amongst my specimens from Gibraltar Point. I have since had the opportunity of examining some beetles collected by the Bird Observatory Staff but these did not include any specimens of *litoralis*.

The two species are much alike, but in *Pogonus chalceus* the striae of the elytra are feeble toward the apex while in *Pogonus litoralis* they continue well defined.

In the neighbourhood of Gibraltar Point I also found one male specimen of *Bledius spectabilis*. The genus frequents the shores of salt and fresh waters where they excavate tunnels and galleries. They are not often seen in the daytime but come out on warm summer evenings after sunset flying in numbers over the surface of the water. The male of *Bledius spectabilis* has a remarkable thoracic horn projecting forward. Although the species frequents the clayey banks of brackish pools my specimen was beneath a stone on a dry area of the sand dunes. The species is not new to the county.

A mystery I should be glad to solve arises from the occurrence of specimens of *Tenebrio molitor* in Spring and Autumn on or near some steps on a garden path behind my house. I have found the species there in early winter and it is usually the last beetle still abroad in this locality. The larva is found in bakehouses, cornmills, and granaries where it does much damage to meal, flour, and ship's biscuits. It is considered a pest by all but bird fanciers who rear the larvae as food for certain cage birds. As there is no bakehouse, mill, or grainery in the immediate vicinity of my home the regular appearance of the beetle is hard to understand.

A specimen of *Bembidion dentellum* collected at Biscathorpe was found to have been attacked by a fungus. The insect was sent to Dr. Blair who replied : " Your specimen of *Bembidion dentellum* is attacked by an entomophagous fungus of the family Laboulbeniacae, which attacks many beetles, particularly ground dwelling species, especially I fancy those that occur in numbers together. Yours is apparently *Laboulbenia vulgaris*.

DIPTERA

J. H. White, B.Sc.

The following additions have been made to the list of Lincolnshire Diptera published in *Transactions*, Vol. xi, p. 163-175 (1946).

Sepsidae.

Meroplius stercorarius Rob. Dev. Scotter, August 1949 (J.H.W.).

Larvaevoridae.

Larvaevora fera L. Linwood, 1949 (E.C.R.).

Syrphidae *Ischyosyrphus laternarius* Muell. Linwood, 1949 (E.C.R.).

Calliphoridae.

Metopia campestris Fall. Linwood, 1949 (E.C.R.).

Therevidae.

Thereva plebeja L. Springthorpe, May 1949 (J.H.W.).

Otitidae (Ortalidœ).

Cenoxys urticae L. Washingborough, August 1949 (J.H.W.).

Lauxariidae (Sapromyzidae).

Trigonometopus frontalis Mg. Greatford, June 1949 (J.H.W.).

Sciomyzidae.

Pherbina coryletti Scop. Stallingborough, 1949 (J.H.W.).

Tipulidae.

Tanyptera nigricornis Mg. Woodhall Spa, May 1949 (F.T.B.).

Cecidomyidae.

Dasyneeira tetensi Dowsley. Riseholme, May 1949 and 1950. (J.H.W.).

RECORDERS : J.H.W.—J. H. White ; E.C.R.—E. C. Riggall ; F.T.B.—F. T. Baker.

NOTES ON THE ECONOMIC ZOOLOGY OF LINCOLNSHIRE DURING 1950

A. ROEBUCK, N.D.A., F.R.E.S.

General Pests.

Wireworms caused about the usual amount of damage to crops and so did slugs.

Leatherjackets were more destructive than for some years, especially to pea crops. Adult Crane Flies swarmed in September and had a good egg laying season.

Cereals.

Wheat Bulb Fly was the most destructive pest on the winter corn, occurring all over the county, especially after fallows or potatoes.

Frit Fly caused much damage to winter wheat but did little damage to the spring oats.

Stem Eelworm and Cereal Root Eelworm continue to spread and the former did a lot of damage.

Hessian Fly occurred on a field of wheat at Saxilby.

The Wheat Stem Sawfly (*Cephus pygmaeus*) was the most remarkable pest on wheat. The insect is not easy to find in most seasons but this year it occurred as a pest at Bardney, Riseholme, Lincoln, Scampton, Fillingham, Stowe, Stapleford and Welbourn. The larva eats inside the base of the stem and finally cuts the stalk, causing it to fall. The larva remains in the stubble.

Grassland.

The Grass Aphid (*Metopolophium festucae*) was again troublesome especially to crops grown for seed.

Caterpillars damaging Timothy grass heads were reared and proved to be those of the Dusky Sallow Moth (*Eremboia ochroleuca*).

Pulse Crops and Clovers.

The Stem Eelworm (*Anguillulina*) continues to cause serious damage in various parts of the County. This is being spread by seed although the seed can be fumigated satisfactorily.

The Clover Midge (*Campylomyza ormerodi*) occurred on a field at Brigg adding to the damage caused by Stem Eelworm.

The Pea and Bean crops suffered little damage once they had escaped the leatherjackets.

Black Aphis was scarce.

Sugar Beet and Mangolds.

The Pigmy Mangold Beetle (*Atomaria linearis*) appears to have built up a big population again and it caused serious damage at Eastville, Little Steeping and Friskney.

The Flea Beetle (*Chaetocnema concinna*) was very abundant on crops at Aubourn and in the Gainsborough district.

Black Aphis was scarce and so were the other pests of these crops.

It is interesting to note that thousands of *Plusia gamma* moths were reported at Gibraltar Point on August 8th. A certain amount of holing of the leaves of sugar beet crops occurred but not sufficient to harm the plants.

Brassica Crops.

The Cabbage Stem Flea Beetle (*Psylliodes chrysocephala*) and the Cabbage Stem Weevil (*Ceutorrhynchus quadridens*) again did much damage. These are probably being spread about with purchased plants.

Miscellaneous Crops.

Flax Flea Beetles (*Aphthona euphorbiae* and *Longitarsus parvulus*) severely attacked a field of linseed near Sleaford.

The Black Currant Leaf Curling Midge (*Dasyneura tetensi*) appeared for the first time in 1949. It is now established in various parts of the County. It is a serious pest which is at present very difficult to control.

The Gladiolus Thrips (*Taeniothrips simplex*) is another new pest which has appeared in the county. From its distribution it would seem to have been introduced by purchased corms.

The Apple and Pear Leaf Blister Moth (*Leucoptera scitella*) appeared on apple trees in Lincoln.

ARACHNOLOGY

G. W. Whatmough, M.P.S.

A dry summer like that of 1949 takes a heavy toll of spider life, for, while most spiders can endure long periods of famine, only a few indoor species are able to survive drought. The year 1950 has been moist enough and generally good for spiders and harvestmen. Autumn flights have been few in the Lincoln area owing to unsatisfactory weather conditions—high winds and squally showers. Spiders will not disperse themselves on gossamer unless climatic conditions are perfect.

The following notes are mainly of spiders new to the present survey and, in some instances, to the county.

The first interesting capture, quite early in the year, was a female *Macrargus rufus* Wid. taken on waste land near Lincoln. Two more were taken at the same spot in March and another, also a female, was found in dry leaves in Denton Park.

A tiny aeronaut seen floating on her gossamer on a sunny spring morning was examined in the container and nearly discarded on the spot as a baby being less than 2mm. in length. It was taken home, however, and found to be a mature *Porrhomma microphtalmum* Cambr. This proved to me the importance of examining the smaller species. About half the British spiders are under three or four mms. in length and the county list is deficient in records of them. This year I have received many more spiders from members all of whom are thanked for their help. Mr. P. F. Baker, Miss W. M. Cooper, Mr. M. P. Gooseman, Mr. E. C. Riggall and Mr. E. E. Steel, have all added to our meagre records. Most of the spiders received have been comparatively large ones and members are asked not to overlook the tiny ones, especially those found on gossamer days in autumn.

One spider came to me from a shop cellar in Lincoln. It came in a flat cardboard box which I opened expecting to see a *Tegenaria domestica*. I was very pleasantly surprised to find a large adult male of a species new to me. The cephalothorax and sternum were bright red. So red that I thought the specimen had been treated with ink to make the task of identification more interesting. I decided to risk ridicule and sent the spider along to Dr. W. S. Bristowe. He identified it as *Dysdera crocota* C. L. Koch. a nocturnal hunting spider. Two months later I was lucky enough to find the female of this species by the roadside near Greetwell, hiding in the folds of a discarded newspaper. Both these spiders were exhibited at the November meeting but several months in seventy per cent alcohol had caused fading of the original bright red colouration.

In April several *Micaria pulicaria* Sund. were seen running with ants on a tree trunk near Doddington. This spider is the same size as the black ant which it mimics quite successfully while both are

on the move. It is easily distinguishable, however, by the simple fact that while you can catch the ant you cannot catch the spider. After about ten minutes I did succeed in bottling a *Micaria*, a mature male with only seven legs, and evidently less agile than his colleagues. Killed and floating in spirit the spider looked far less ant-like.

Later in April my wife captured a tiny grey spider in moist leaves near Skellingthorpe. Mr. G. H. Locket of Harrow identified it as *Enoplognatha thoracica* Hahn. On the same day several *Lepthyphantes flavipes* Bl. were taken on tree trunks close to the ground.

Sand dunes and salt marshes from Gibraltar Point north to Saltfleet have yielded the coastal hunting spider (or wolf spider) *Lycosa monticola*. I am indebted to P. F. Baker for the Gibraltar Point examples.

The field meeting at Grimsthorpe Park produced three notable species *Salticus cingulatus* Panz., *Hypomma cornuta* Bl. and a *Zelotes*. There are nine British *Zelotes*, none of which have ever been reported from Lincolnshire. It was unfortunate that the Grimsthorpe specimen was immature and defied definite identification.

The July field meeting at Stapleford gave us a new county record, *Theridion impressum* L.K. The find spot is near to the Notts./Lincs. border but it is interesting to note that there are no Notts records for this spider according to " Comity of Spiders."

From Gibraltar Point the most important capture to date is the salticid *Hyctia nivoyi* Luc. taken on the beach in September by P. F. Baker. So far only about twenty spiders and one harvestman have been recorded from the Point which is probably too bleak to be heavily populated by arachnids. Patient search of small areas should result in the discovery of many more linyphiids, only two of which have been identified to date. A number of immature *Tibellus* sp. were taken on the stems of marram at the field meeting in September. The common *Tibellus parallelus* C. L. Koch has two pairs of spots on its long narrow abdomen ; a rarer species *Tibellus oblongus* Walck. has, typically, one pair of spots while the young spiders taken at Gibraltar Point were quite devoid of spots. It will be interesting to examine adults next spring to make sure if we have the common *parallelus*, a comparative rarity, a variety, or even, possibly, a new species. Since it is unlikely that the Point has ever been worked previously—the 1900 list compiled by A. Smith contains no records from this area—there is a faint but definite possibility that discovery awaits us.

Yew trees in Denton Park yielded many common orb spinners and one rare one *Cyclosa conica* Pallas. This is only the third recent record we have for this spider.

Little time has been spent on harvestmen this year, but the weather has been very favourable to them and two more species have been added to Dr. Bristowe's 1948 list, viz: *Lacinius ephippiatus* C. L. Koch and *Oligolophus hanseni* Kraep. bringing the total for the county, out of twenty-one known British species, to thirteen.

ORNITHOLOGY

S. A. Cox.

The classification and numbering follow H. F. Witherby and others, *Handbook of British Birds*, 1941.

18. **Hawfinch.** *Coccothraustes coccothraustes.*

On June 8th a beautiful male of this very elusive species was seen in the grounds of Carlton Lodge, Great Carlton, where it was probably breeding. (B.A.P.).

28 or 29. **Twite.** *Carduelis flavirostris.*

One was seen inland at close quarters at Limber on March 21st. Normally it is confined to the coastal fields during the autumn and winter months. Twites reappeared at North Coates early in October, and were seen associating with Linnets (*Carduelis cannabina*) from October 8th onwards. (R.M.).

42. **Brambling.** *Fringilla montifringilla.*

One mature male did not make the customary return passage to northern Europe, and his continued presence was first noticed in the Limber beech-woods on May 31st. He was plainly anxious to find a mate, and tried, unsuccessfully, to entice away a hen Chaffinch (*Fringilla coelebs*), which was already mated and building. Sparring was seen between the two rival males. The loud call was rather reminiscent of the Greenfinch (*Chloris chloris*), and was frequently heard from high, exposed positions in the woods. After the end of June this was less frequent, and the presence of the Brambling became increasingly difficult to detect. It was, however, located as late as August 4th. The first immigrant Bramblings appeared about two months later. (R.M.).

69. **Wood-Lark.** *Lullula arborea.*

Occurred in four localities within a few miles of Brigg. After watching the movements of a pair for about thirty minutes on March 26th, a nest with four eggs was located. As usual, it was on a bracken-covered hillside, and the contents were slightly screened by the dead fronds of the previous season's growth. On visiting the site three weeks later it was found that the young had been destroyed and partly devoured by vermin. (R.M., S.A.C., C.H.C.). A subsequent nest, only a few yards from the first, contained four eggs on July 9th. (R.M.).

96. **Nuthatch.** *Sitta europaea.*

One was noted in the grounds of Grimsthorpe Castle on July 2nd. (E.I.A.). Recent county records for the county north of Lincoln are still lacking.

120. **Waxwing.** *Bombycilla garrulus.*

There were three reported occurrences. Immingham, one, January 12th. (C.H.C.). Stamford, four, January 31st. (M.C.W.). Old Clee, two, February 19th. (S.A.C.).

129. **Chiff-Chaff.** *Phylloscopus collybita.*

On February 10th a small leaf-warbler was seen about an allotment at Grimsby, where it was feeding about a manure-heap and catching flies or spiders on a garden-shed. It was seen again on February 13th, 15th and 18th, and had a typical warbler flight, but, owing to poor visibility, its identity could not be ascertained with positive certainty. Then, on February 19th, its identity was finally established. It was seen again on March 5th and 13th. This was the second winter in succession that the Chiff-Chaff had wintered in the county, and once again the change of habitat from summer to winter was remarkable. Unlike the 1949 bird, which sang freely in February and early March, no song or call was uttered. The first spring immigrants appeared in their normal woodland haunts ten days (March 23rd) after the departure of the bird which had wintered. (C.H.C.).

186. **Wheatear.** *Oenanthe oenanthe.*

Four belated stragglers were seen on November 4th, three of them at Grimsby, and one at Stallingborough. (C.H.C.).

198. **Stonechat.** *Saxicola torquata.*

One, at Wykeham, was feeding with finches and buntings on the remains of a stack on December 18th (E.W.F.).

201. **Redstart.** *Phoenicurus phoenicurus.*

One was seen at Scawby on May 6th, and stayed throughout the breeding-season. (L.N.U.). One, at Bennington, on passage, September 4th (G.R.P.).

220. **Swallow.** *Hirundo rustica.*

In the late summer and early autumn about 10,000 swallow-birds were roosting nightly amongst the reed-mace (*Typha*) in disused ballast-pits by the railway at Barnetby. They were said to have been present for three weeks prior to October 1st. There were a few Sand-Martins (*Riparia riparia*), but the vast majority were Swallows. (R.M.).

A belated brood of Swallows were still in the nest at North Cotes on October 1st, but had safely taken their departure on October 7th. (S.A.C.). Swallows were seen at Brigg and Limber on October 27th. (S.A.C., R.M.).

225. **Swift.** *Apus apus.*

Breeds more commonly in Spalding than all the hirundines combined. Most are gone by the end of August, but odd birds lingered and the last was seen on September 10th (E.W.F.).

232. **Hoopoe.** *Upupa epops.*

One was seen at Brattleby on October 8th. It was flushed by a dog from a field of beet, and hung quivering in the air. Its orange plumage and the black stripes on the wings and back were plainly distinguishable. It was noted that the bill was fairly long and slightly curved. The Hoopoe then flew into a tree, and finally vanished altogether. (D.S.). It was at Brattleby that the Hoopoe was suspected to have bred for two years in succession, in 1880 and 1881. There appear to have been four county occurrences during the past twenty years. (S.A.C.).

234. **Kingfisher.** *Alcedo ispida.*

Three, at North Cotes, September 17th. (J.F., S.A.C.).

236 or 237. **Great Spotted Woodpecker.** *Dryobates major.*

One, which may have been a migrant, in the sea hedge at Thrunscoe May 10th. (B.A.P.).

238. **Lesser Spotted Woodpecker.** *Dryobates minor.*

Nested successfully at Little Brocklesby in 1950. (R.M.).

250. **Long-Eared Owl.** *Asio otus.*

Two nests at Cuxwold on April 9th. One contained three eggs, the other had three eggs and two small owlets. (S.A.C., C.H.C.).

A nest at Wootton on June 11th contained two small young. A new nest of a Carrion-Crow (*Corvus corone*) had been utilised. (J.K.).

251. **Short-Eared Owl.** *Asio flammeus.*

One, at Goxhill, March 12th. (R.M.).

A pair bred amongst rough grass in a young plantation at Scotton. The nest contained five young on May 22nd. One was small and under-nourished, and did not survive. (R.M., J.K.). Odd birds were seen at North Cotes on September 3rd and October 8th. (R.M.). One, at Cleethorpes, October 20th. (E.I.A.).

259. **Peregrine.** *Falco peregrinus.*

An immature bird was picked up dead on the Humberston foreshore on January 1st (S.A.C., R.M., C.H.C.).

262. **Merlin.** *Falco aesalon.*

One, at North Cotes on October 28th. It was flying high, and is usually silent at this season, but its call attracted attention. (R.M.).

269. **Common Buzzard.** *Buteo buteo.*

One was caught in a trap at Rothwell in August. (R.N.).

271. **Marsh-Harrier.** *Circus aeruginosus.*

One, in disused claypits, Goxhill, March 12th. (R.M.). One, in the Barrow Haven—Barton area in similar circumstances, July 30th. (K.F.).

277. **Sparrow-Hawk.** *Accipiter nisus.*

A hen Sparrow-Hawk was seen carrying a medium-sized bird at Croxby Pond on January 8th. This fell from the hawk's talons into a pollard yew, and proved, on recovery, to be a Starling (*Sturnus vulgaris*). The Sparrow-Hawk is much less numerous than twenty years ago. (S.A.C.).

289. **Common Heron.** *Ardea cinerea.*

An examination of the principal heronries in 1950 showed that there were 36 nests at Troy Wood, 18 at Muckton, 15 at Haverholme and 3 at Welton. Troy Wood and Haverholme each showed an increase, compared with 1949, Muckton showed a decrease, whilst Welton, which was abandoned a few years ago, owing to the activities of woodmen, has now been partly re-colonised. (G.R.P.).

297. **Bittern.** *Botaurus stellaris.*

One was flushed from a patch of reeds in Brocklesby Park on February 26th, and is an interesting addition to the varied avi-fauna of the Brocklesby lakes. (R.M.).

Bred again at Barton-on-Humber. The eggs were just chipping when the nest was located on April 23rd. (R.M.).

300. **Whooper Swan.** *Cygnus cygnus.*

One, at Brocklesby, from January 22nd to February 12th. (R.M.).

304. **White-Fronted Goose.** *Anser albifrons.*

A flock of 14 or 15 near Bishopthorpe, on December 21st. The barred breasts were easily discernible. (B.A.P.).

307. **Pink-Footed Goose.** *Anser brachyrynchus.*

The commonest wintering Goose in the Spalding district. A flock of over 180 were examined carefully on December 29th, and all were Pink-footed. (E.W.F.).

311. **Barnacle-Goose.** *Branta leucopsis.*

Early in January several Barnacle-Geese were feeding, in the company of grey Geese (probably Pink-footed), on the Wolds at Melton Ross. (J.H.D.). Normally it is regarded as a marine species.

315. **Sheld-Duck.** *Tadorna tadorna.*

Seven, with three Curlew (*Numenius arquata*), flying up the Welland near Cowbit just before sunrise on September 15th. A single, immature bird flying up the Welland near Wykeham early on September 17th, (E.W.F.).

318. **Gadwall.** *Anas strepera.*

Two, Brocklesby lakes, January 8th A drake at Fillingham, February 6th. (R.M.).

322. **Garganey.** *Anas querquedula.*

One, near Humberston, August 18th. (B.A.P.).

326. **Shoveler.** *Spatula clypeata.*

A pair on the ponds at Bardney sugar-factory, May 21st. (E.I.A.).

342. **Goosander.** *Mcrgus merganser.*

Two immature birds, Brocklesby lakes, February 26th. (R.M.).

344. **Smew.** *Mergus albellus.*

Three Smew came to the Brocklesby lakes early in the year, a mature drake and two "red-heads," and remained undisturbed for over two months. They were seen for the last time on March 5th. (R.M., S.A.C., J.F.). A duck on the Welland near Crowland on December 29th. (E.W.F.).

370. **Great Crested Grebe.** *Podiceps cristatus.*

One pair, at least, bred on ballast-pits at Lincoln. They were seen with two young on July 16th, and on several subsequent occasions. (E.I.A.).

387. **Black-tailed Godwit.** *Limosa limosa.*

Twelve, on a shallow pool at Fosdyke, September 16th. (E.W.F.).

388. **Curlew.** *Numenius arquata.*

Bred in at least two separate localities in the Brigg area. First egg, April 22nd. (R.M.). Brood hatching out, May 20th. (S.A.C., J.F.).

389. **Whimbrel.** *Numenius phaeopus.*

Several at Fosdyke on September 16th. (E.W.F.). An injured bird was picked up on November 12th beneath telegraph wires in the marsh at Humberston. An exceptionally late record. (B.A.P.).

395. **Snipe** *Capella gallinago.*

Nested in at least two localities near Brigg. (S.A.C., J.F., R.M.).

403. **Knot.** *Calidris canutus.*

Several birds were seen at North Cotes on September 10th had traces of the rosy summer plumage. (R.M.). Two at Cleethorpes, on October 17th, had a similar appearance. (E.I.A.).

406. **Curlew-Sandpiper.** *Calidris testacea.*

One, at North Cotes, on September 3rd. (S.A.C., R.M.).

417. **Ruff.** *Philomachus pugnax.*

First noted on August 21st, and then regularly. A dozen on August 31st, 20 or more from September 14th to 17th. Last seen on September 21st. (B.A.P.).

Two Ruffs and a Reeve at Fosdyke on September 16th. (E.W.F.).

421. **Common Sandpiper.** *Actitis hypoleucos.*

Last seen at North Cotes on October 14th. (S.A.C.).

423. **Wood-Sandpiper.** *Tringa glareola.*

One, at Silversides, on August 6th. (R.M.).

The same bird called on the wing and returned three times in less than thirty minutes to the same patch of mud on August 9th. (S.A.C.). It was last seen on August 12th. Owing to an excessive growth of rank vegetation the ponds were less attractive to waders than in 1948 and 1949. A second Wood-Sandpiper was present in the marsh at Humberston from August 12th to 18th. (B.A.P.). A third bird was flushed from a pool at North Cotes on September 3rd. (R.M., J.K.).

431. **Spotted Redshank.** *Tringa erythropus.*

On February 6th, at dusk, an unmistakeable example settled about twenty yards away and began feeding in shallow water. Owing to the failing light the bird could be watched only as a silhouette, but the long bill and legs were sharply defined in the afterglow of sunset. During the afternoon of February 10th, it was seen twice at the same place, thus confirming the earlier identification. Normally the Spotted Redshank is a rare passage-migrant in May, rather less so in August and September. (B.A.P.).

432. **Greenshank.** *Tringa nebularia.*

Halted on passage at North Cotes for a few days early in May. (S.A.C.). Two were present on the return passage at Silversides for the first nine days of August, and they were exceptionally numerous at North Cotes until September 16th. As many as six were seen together, on one occasion from a range of ten yards in brilliant sunshine. (S.A.C.).

440 or 441. **Golden Plover.** *Pluvius apricaria.*

On November 30th, following sharp ground-frosts, there was a great concentration of fully a thousand birds on a ploughed field in the marsh at Humberston. (B.A.P.).

462. **Black Tern.** *Chlidonias niger.*

One at Thoresway, fishing in the reservoir, May 14th (C.H., per T.H.W.).

467. **Sandwich Tern.** *Sterna sandvicensis.*

Much more numerous on the coast in August and September. This was especially so on September 10th, when a Skua (*Stercorarius* spp.) was harrying them, but, unfortunately, it was immature, and it was impossible to establish whether it was Arctic or Long-tailed. It did, however, pass sufficiently close to distinguish the dark shafts of the primaries. (R.M., J.K.).

477. **Little Gull.** *Larus minutus.*

One, on the docks at Grimsby, on December 18th. The tern-like flight, small size and black band on the tail first caught the eye. The black on the " leading edges " of the wings was noted, the " trailing edges " being white. (C.H.C.).

504. **Corn-Crake.** *Crex crex.*

One, at Limber, on April 8th. The dangling legs, as it flew, first attracted attention. (L.M.). One calling at Torksey on May 14th. (A.G.R. and J.R., per T.H.W.).

509. **Water-Rail.** *Rallus aquaticus.*

A fine specimen collided with a window-pane in the main thoroughfare of Grimsby on March 17th. The fact was reported and the " body " submitted by a Mr. Grant. (S.A.C.). Nest and three eggs at Barton April 23rd. (R.M.).

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LIST OF PLATES

facing page

Microfungi 130, 131, 132, 133, 134, 135
S. H. Robinson, President, 1947 .. .. .. *frontispiece*

TEXT FIGURES

page

Bicker counts, study of relationship between individuals and species 37
Carr Lane borehole, Hibaldstow 43
Microscope: Powell and Lealand, No. 1 18
Microscope: Powell and Lealand, No. 2 21
Microscope: Powell and Lealand, portable 26
Sub-surface geology of the Lincolnshire Fenland 137-8

INDEX TO PRINCIPAL CONTENTS

Arachnology:

Investigation to be undertaken, 79
Notes on collecting and preserving spiders, 175-8
Report on, 213

Arnold, C.P., death of, 48

Baker, F.T., annual reports by, 44, 94, 140, 190

Batters, R. J.:

Elected President-elect, 46
Elected President, 1948-9, 96
On *Adjustment and illumination when photographing with the aid of a microscope*, 83-90

Birds: *see* Ornithology

Blathwayt, Rev. F. L.:

On *The Chequered Skipper in Lincolnshire*, 91-93

Book reviews, 178

Botany:
- Botanical Society of the British Isles in Lincs., 192
- Reports on, 52, 100, 146, 196
- *see also* Freshwater Algae
  Mycology

Butcher, Dr. R. W.:
- Elected President-elect, 143
- Elected President, 1950-1, 192
- On *The Naturalist and his contribution to biological knowledge*, 181-9

Cameron, Miss C., death of, 98

Chesters, Professor C. G. C.:
- Elected President-elect, 96
- Elected President, 1949-50, 143
- On *The Succession of microfungi associated with the decay of logs and branches*, 129-135

Coleoptera: reports on, 60, 110, 159, 205
- *Rhagium bifasciatum* at Woodhall Spa, 108

Cornwallis, R. K.: elected President-elect, 193

Cox, S. A.: ornithological reports by, 67, 118, 168, 215

Court, T. H.: elected President of Entomological Section, 143

Cragg, Capt, W. A., death of, 194

Diptera:
- Additions to list, 210-1
- Corrections to list, 59

Dragonflies, notes on, 59, 108, 158, 205

Entomology:
- Reports on, 57, 107, 156, 202
- The Chequered Skipper in Lincolnshire, 91-93
- *see also*
  - Coleoptera
  - Diptera
  - Dragonflies
  - Hymenoptera

Flora: *see* Botany, Mycology

Fowler, Miss E. E., death of, 195

Freshwater Algae:
- *Hydrodictyon utriculatum* in Lincs., 202

Fungi, *see* Mycology

Geology:
Publication of " The Geology of Lincolnshire," 140
The Carr Lane borehole, Hibaldstow, 40-43
The Sub-surface geology of the Lincolnshire Fenlands, 136-9
Gibbons, Miss E. J., botanical reports by, 52, 100, 146, 196
Goulding, the late Miss Gertrude:
Bequest from, 94, 99

Hibaldstow:
The Carr Lane borehole, 40-43
Horn, L., death of, 145
Husband-Clutton, Dr. F., death of, 145
Hutchinson, R., death of, 194
Hymenoptera:
Birch Sawfly (*C. femorata*) in Lincs., 205

Insects: *see* Entomology

Johnson, Walter, death of, 195

Kent, Dr. P. E.:
On *The Carr Lane borehole, Hibaldstow*, 40-43
Kew, H. Wallis, death of, 99
Kirk, F. L., entomological reports by, 57, 107, 156

Lincolnshire Naturalists' Trust:
Legally constituted, 94, 140
L.N.U. representatives elected, 96, 193
Lincolnshire Naturalists' Union:
Accounts, 2, 82, 128, 180
Annual Meetings, 46, 96, 143, 192
Field Meetings:
Ancaster, 142
Barton-on-Humber, 142
Benniworth Haven, 45
Blankney Park, 95
Calverton, Nr. Nottingham, 191
Cleethorpes, 95
Coningsby, 45
Denton, 192
Gibraltar Point, 46
Grimsthorpe Park, 191
Holbeck, 95
Holton-le-Moor, 45
Langworth, 44

Limber and Brocklesby, 95
Manton, 192
North Rauceby, 45
Saltfleetby, 191
Scawby, 191
Scunthorpe, 95
Skellingthorpe Wood, 142
Stapleford Woods, 191
Syston Park, 95
Thonock Park, 142
Twigmoor, 192
Hon. Secretary and Treasurer's reports, 44, 94, 140, 190
Lectures in Natural Sciences, 97
Lecture-demonstrations, 46, 95, 142, 192
Members, list of, 3-10
Natural History Brochures, 44, 94, 140, 190
New members, lists of, 47, 97, 143, 193
Objects and rules, 11
Officers, 1, 81, 127, 179
Public Lecture, 192
Sectional Officers' reports, 46, 52, 96, 100, 143, 146, 192, 196
Special General Meeting, 96
Subscriptions, 10
Transactions, 11

McKnight, J. R., death of, 195

Maples, A. K., death of, 194

Microscopy:
A short history of the microscope, 12-31
Microscope symposium, 95
Photographing with the aid of a microscope, 83-90

Mycology:
British Mycological Society in Lincs., 141
Fungus Forays:
Blankney Park, 95, 103-5
Denton Park, 192, 198-200
Holton-le-Moor, 45, 54-7
Thonock Park, 142, 152-6
Woodhall Spa, 141, 148-152
Reports on, 53, 102, 147, 198
The succession of microfungi associated with the decay of logs and branches, 129-135

Nature Reserves and Wild Life Conservation Committee of L.N.U., 46, 50

Noel, Miss E. F., death of, 194

Ornithology:
Heronry in Troy Wood, Coningsby, 45
Preliminary quantitative study of the birds near Bicker Haven, parts of Holland, 31-39
Reports on, 67, 118, 168, 215

Prentice, J. E.:
On *The Sub-surface geology of the Lincolnshire Fenland*, 136-9

Riggall, E. C., coleoptera reports by, 60, 110, 159, 205
Robinson, S. H.:
Elected President, 1947-8, 46
On *A short history of the microscope*, 12-31

Roebuck, A., reports on economic zoology, 63, 116, 164, 211
Russell, Mrs. M., death of, 49

Sharpe, Lt.-Col. W. Salisbury, death of, 48
Shillito, C. F. B., death of, 195
Small, H. M.:
Notes on dragonflies, 59, 108, 158
Report on entomology, 202
Smith, A., death of, 49
Smith, A. E., report on Nature Conservation, 50
Smith, Dr. H. B. Willoughby, death of, 98
Spiders, *see* Arachnology

Tucker, D. G.:
On *A preliminary quantitative study of the birds near Bicker, parts of Holland*, 31-39

Wallace, Dr. William, death of, 49
Waterhouse, Miss G. M., mycological reports by, 53, 102, 147, 198
Whatmough, G. W.:
On *Collecting and preserving spiders*, 175-8
Report on arachnology, 213
To undertake work on spiders, 79
White, J. H.:
On *Additions to list of Lincolnshire Diptera*, 210-1

Yglesias, Rev. F. M., death of, 195

Zoology:
Economic reports on, 63, 116, 164, 211
see also
Arachnology
Entomology
Ornithology

BRITISH MUSEUM
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